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Columbia Mo

Feb 1881



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U.S. Army

Columbia Mo

July 1881

A COLLECTION

OF

ANNUAL REPORTS AND OTHER IMPORTANT PAPERS,

RELATING TO THE

U.S.
ORDNANCE DEPARTMENT,

TAKEN FROM THE

RECORDS OF THE OFFICE OF THE CHIEF OF ORDNANCE, FROM
PUBLIC DOCUMENTS, AND FROM OTHER SOURCES.

PREPARED UNDER THE DIRECTION OF

BRIG. GEN. STEPHEN V. BENÉT,

CHIEF OF ORDNANCE, U. S. ARMY.

VOLUME II.

(1845 TO 1860.)

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ORDNANCE REPORTS, 1812 TO 1871.

[Letters to W. D., vol. 8, p. 286.]

ORDNANCE OFFICE,
Washington, January 14, 1845.

SIR: I herewith inclose a letter from the Hon. James A. Black, of the Military Committee of the House of Representatives, calling attention to Jenks's patent fire-arms, and urging that the Second Regiment of Dragoons be armed with them, and also that one thousand rifles of that pattern be procured for the States.

Mr. Black also intimates that much money has been spent uselessly in adopting other improvements without sufficiently testing them. As his allusion is doubtless to the fabrication of Hall's rifles, I feel it my duty to give a few facts in the case, with your permission, that he may be set right in the premises, as his information appears to have been drawn from sources deeply interested in *criying down* one patent that another may take its place.

The advantages of breech-loading arms in some cases are so manifest that innumerable trials have been made in Europe to perfect a good arm of this description, but after repeated and long continued efforts the matter has been finally abandoned as not affording benefits equal to the over-balancing evils.

The United States long since adopted Hall's rifles, after such trials as appeared to satisfy all objections, and that they were overcome is fully shown by the reports and statements made, a reference to which is indicated in the notes herewith. The First Regiment of Dragoons when first raised was armed with carbines of this model, and they received the most unqualified approbation. How is it that the opinion of their utility has recently been changed? It is because no attention has been paid to keep the arms in the hands of troops in good condition, nor have the soldiers been properly instructed in their use. Neglecting to keep the joint close, a blast has been suffered to exist and ruin the stocks. I am practically acquainted with the use of Hall's arms, and assert unqualifiedly that if my honor and life were at stake, and depended on the use of fire-arms, I would sooner take one of these carbines than any other weapon. But *fashions* change, and what is good to-day will be cried down to-morrow. Upon due consideration of the subject the department decided on abandoning the manufacture of breech-loading arms, and have followed in the steps of the great powers of Europe, deciding that a diversity of arms was productive of evil, and adopting those of ordinary construction which are the simplest and easiest managed by the common soldier.

Jenks's patent arms have been more than once objected to by competent boards of officers. Hall's arms never. The Navy Department have adopted Jenks's arms for trial, on the strength of the report made at Fort Adams. They have not been tried in service to any extent, and the little experience had has been against them, as will be seen by the

notes herewith: besides, they must become damaged in service, and the means for their convenient repair are not to be found at every arsenal. They would, therefore, be thrown aside like Colt's patent, and become useless from small defects, merely because they could not be repaired. As regards the arming of the Second Dragoons with them, Colonel Twiggs has protested in advance, on being remounted, against the use by his regiment of any breech-loading or patent arms of any kind whatever.

There are now Colt's, Jenks's, Hubbell's, Nutting's, Cochran's, Chambers's, Ellis's, Hackett's, Smith's, and I know not how many other kinds of patent arms, the inventors of which can each produce equal testimonials of the *inestimable* value of their arms, and their decided superiority over everything else that has been offered to the government. That they will ultimately all pass into oblivion cannot be doubted, and after a lapse of time may be again resuscitated, as some of them have been already. If we have committed one error in adopting patent arms that promised such important benefits as are set forth in the several reports and spread out in public documents, it surely behooves us to be cautious, now that we have escaped from it, and not on light grounds be ensnared again by the projects of inventors.

I am, sir, &c.,

G. TALCOTT,
Lieutenant-Colonel of Ordnance.

Hon. WM. WILKINS,
Secretary of War.

Notes from reports on the efficiency of Hall's rifles, and other breech-loading arms, Jenks's patent arms, &c.

[See reports of committees, House of Representatives, vol. 2d, Twenty-fourth Congress, first session, No. 375, pages 6 to 10.]

Substance thereof:

TRIALS OF AND REPORTS ON HALL'S PATENT ARMS.

In 1818-'19 a board of officers, of which Colonel Towson (now Paymaster-General) was president, made experiments with Hall's musket and rifle, in conjunction with the common musket manufactured at Harper's Ferry, and reported the former as superior to the latter in many respects and inferior in none. In these experiments the musket was fired 7,061 times and the rifle 7,186 times.

In 1826 two companies at the artillery school of practice were armed with Hall's rifles, and on the 28th of July of that year commenced a course of practice in opposition to an equal number of men armed with Springfield muskets, which practice was continued until December, 1826, a period of five months, when a report was made by the officers composing the staff of the artillery school of practice, viz: Colonel Eustis, Major Crane, Major Heeleman, and Captain Baker, of the artillery, expressing their "perfect conviction of the superiority of this arm over every other kind of small-arms now (then) in use." Hall's arms were also tested by service in the hands of several companies of infantry at Jefferson Barracks and by private individuals, and many of them were issued to the States on their application. The reports from boards of officers and others who had tried them invariably represented their decided superiority over all other fire-arms.

See Senate docs. Nos. 15 and 29, first session Twenty-fifth Congress.—

Again, under a resolution of the Senate of 27th January, 1837, a board of officers was appointed to examine the improvements in fire-arms made by Hall, Colt, Cochran, and Baron Hackett. This board was composed of officers of different corps of the Army and of the Marine Corps. They experimented and examined the subjects submitted to them very fully, and reported as their unanimous opinion that "the standard arm now [then] in use in the service of the United States regular and militia, viz: United States musket and rifle and Hall's musket, rifle, and carbine, with such improvements in *construction* as the latter are susceptible of, combine, in a higher degree, all the requisites of convenience, durability, simplicity, and effect than any that have been suggested for the general armament."

TRIALS OF AND REPORTS ON JENKS'S ARMS.

In 1838 Jenks's gun (musket) was submitted for trial to a board of officers composed of General Fenwick, of artillery; Lieutenant-Colonel Talcott, ordnance; Major Baker, ordnance; Major Erving, artillery; and Captain Mordecai, ordnance. A committee of two members, Majors Baker and Erving, were directed to examine it and report its opinion on the principles of its construction and its adaptation to the public service. This committee made a report, which was adopted by the board, that in common with other arms loading at the breech the machinery necessary to its operations is objectionable in Mr. Jenks's invention, and that the arm, although ingenious in its design, is unsuited to the service of troops. In 1841 some of Jenks's carbines were sent to Carlisle Barracks for trial by the dragoons at that station, and some also to Florida for trial in the hands of troops in active service in the field. The report of Captain Sumner, of the First Regiment Dragoons, commanding Carlisle Barracks, states that he had tried both Colt's and Jenks's carbines with no prejudice for or against either of them; that he is satisfied that "Colt's carbine will not do for military purposes"; that taking off circles from the length of *Jenks's carbine* does not make the least difference in its accuracy or force, but renders it a convenient weapon for horsemen; and that if it was made with a *whole barrel* and a *screw for the ramrod* it would be by far the best piece we have ever had. Captain Sumner also states that no time of any consequence is saved by loading at the breech; that when the piece becomes foul the gun loading at the muzzle can be fired more rapidly; and that it is infinitely better in all respects.

In Florida Major Fauntleroy, of the Second Dragoons, refused to take these carbines into the field on the grounds that his men were ignorant of the use of them, and that he did not feel justified in placing an untried arm in the hands of his men when the lives and reputations of all were at stake. Trials of Jenks's carbine, for the purpose of testing its merits and its adaptation to war purposes, were then ordered to be made in garrison, at Fort Adams, by a board composed of Major Payne and Captain Lowd, of the artillery, and Captain Thornton, of the ordnance. This board, after firing four of the carbines to test their length, force, accuracy, and rapidity of fire, and continuing the firing with one of them to 4,500 rounds to test its durability, report their opinion that "it is well adapted to and capable of performing all the requirements of the service." The firing with this carbine was subsequently resumed, and it was fired 10,313 times in addition to the previous 4,500 fires, making in all 14,813 fires, when the nipple split, and it being impossible to fire longer without repairs, this was considered by the board as the *endurance*

of that gun. Early last year, under an order of the Secretary of War, there were procured from Mr. Jenks forty carbines, twenty like those he furnished for the Navy and twenty rifled: these were issued to Companies D and E of the First Dragoons (10 of each kind to each company) for trial in the hands of soldiers.

The officer commanding Company E, Captain Steen, has since reported that they are "not worth the store-room they occupy." No report has been received from the other company.

[Letter No. 19. W. D., January 16 and 17, 1845.]

ORDNANCE OFFICE,
Washington, January 16, 1845.

SIR: In fulfilling the duties incident to the arming "the whole body of the militia," under the provisions of the law passed 23d April, 1808, with which this office is charged, it has been usual to request the executive of each State to designate the kind of arms that are desired, whether for infantry, cavalry, riflemen, or artillery, and their several quotas have usually been furnished according to the preference indicated.

For several years past, however, some of the States have desired to obtain small brass field-pieces, cadet muskets, and patent arms of various kinds. The desire for these various descriptions of arms has been much extended of late, and it appears to me necessary to decide the principle which shall govern in all such cases, viz: Shall the United States, under the law above mentioned, provide for issue to the States any arms or ordnance stores differing from those that are designated and furnished for the use of the Army, or of the militia, when called into actual service? The immediate cause of my presenting the subject for your decision at this time will be found in a letter from the adjutant-general of the State of Virginia, which is respectfully submitted herewith.

I am, sir, respectfully, your obedient servant,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Hon. WM. WILKINS,
Secretary of War.

Decision for the Ordnance Office.

Under the provisions of the act of April 23, 1808. "for arming and equipping the whole body of the militia of the United States," the Ordnance Department must be governed in providing for and issuing to the militia only such arms and military equipments as are provided for the Army. A strict adherence to this rule is rendered necessary, as the militia, when in actual service, must be supplied with fixed ammunition, &c., from the magazines and depots provided for the Army.

This corresponds with the first section of the first militia law, of May 8, 1792, where it is provided that "from and after five years from the passage of this act, all muskets for arming the militia, as herein required, shall be of bores for balls of the eighteenth part of a pound," which was then the Army musket, and has never since been changed in this respect.

WM. WILKINS,
Secretary of War.

WAR DEPARTMENT,
January 17, 1845.

ORDNANCE OFFICE,
Washington, January 30, 1845.

SIR: In reply to your letter of the 28th instant, I have the honor to state that, by the second section of the act approved August 23, 1842, both the number of military storekeepers of the Ordnance Department and their pay were reduced, the latter, in my opinion, below a reasonable and fair compensation for the services these officers are required to perform and the responsibilities to which they are subjected. The reason for this reduction I suppose to be the spirit of retrenchment then prevalent; but why this particular class of officers was selected I know not.

By the existing law there are two grades of military storekeepers; the first, including five persons, at \$1,250 per annum each, ten at \$800 each.

Their duties are the disbursement, under the direction of the commanding officers, of all the money expended at the armories and arsenals where they are stationed, including the payment of all hired men, and of all bills for articles purchased; also the proper arrangement and preservation of all the munitions of war *in store* at these places, with the receipt, issues and accountability for the same, and they are required to give bonds for the faithful performance of these duties. The accompanying statement will give a correct idea of the responsibilities and an approximate one of the duties of each.

Besides the reduction in the pay of military storekeepers, by the act of August, 1842, they were entirely cut off from the allowance of fuel, which they had previously received in common with other officers. I am of opinion that a restoration of this allowance, and an addition of \$200 a year to the pay of those of the second grade, would be no more than a fair compensation.

Respectfully, &c.,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Hon. CHESTER ASHLEY,
U. S. Senate.

Statement of the names, duties, &c., of the ordnance military storekeepers.

Names.	Station.	Annual amount of disbursements (average for four years.)	Value of property in charge.	Amount of bond.	Salary.
M. C. Buck	Washington Arsenal.....	\$59,547 83	\$931,625 17	\$20,000	\$1,250
S. Lansing, jr	Watervliet Arsenal.....	97,306 68	1,707,614 62	20,000	1,250
Richard Parker	Harper's Ferry Armory.....	186,498 66	648,318 51	50,000	1,250
Edward Ingersoll	Springfield Armory.....	162,706 49	2,465,238 86	50,000	1,250
Richard B. Butler	Allegheny Arsenal.....	40,118 95	943,490 51	20,000	1,250
Silas Halsey	Champlain Arsenal.....	533 72	92,595 93	15,000	800
Daniel Ragan	Missouri Depot.....	3,325 39	41,184 41	15,000	800
David Butler	Little Rock Arsenal.....	19,896 73	256,505 33	15,000	800
James R. Hanham	Saint Augustine Depot.....	1,275 49	17,030 26	15,000	800
I. A. Webber	Watertown Arsenal.....	12,943 99	1,095,954 51	15,000	800
James S. Abeel	Rome Arsenal.....	480 50	72,046 86	15,000	800
W. R. Shoemaker	Fort Armstrong Depot.....	250 00	139,000 00	15,000	800
S. I. Carr	Pikesville Arsenal.....	2,229 23	273,843 11	15,000	800
J. M. Galt	Apalachicola Arsenal.....	6,914 17	195,638 80	15,000	800
R. I. R. Bee	Charleston Arsenal.....	Recent ap- pointment.	Recent ap- pointment.	15,000	800

[Miscellaneous Letters, vol. 36, p. 152. January 31, 1845.]

ORDNANCE OFFICE,
Washington, January 31, 1845.

SIR: In reply to your letter of yesterday, I furnish you with the subjoined memorandum of documents and reports on the subject of the establishment of a national foundry:

Senate doc., first session Twenty-fourth Congress, vol. 1, doc. 1, p. 47.
Senate doc., first session Twenty-sixth Congress, vol. 7, doc. 451, p. 115.

Senate doc., second session Twenty-seventh Congress, vol. 1, doc. 1, p. 359.

Reports of committee, first session Twenty-fourth Congress, vol. 3, Report No. 669.

Reports of committee, third session Twenty-fifth Congress, vol. 1, Report No. 168.

Reports of committee, third session Twenty-seventh Congress, vol. 2, Report No. 229.

Reports of committee, first session Twenty-eighth Congress, vol. 2, Report No. 455.

Respectfully, &c.,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Hon. ALEX. RAMSAY,
House of Representatives.

[Letters to W. D., vol. 8, p. 291.]

ORDNANCE OFFICE,
Washington, January 25, 1845.

SIR: On the subject of the letter of the Hon. J. J. McKay, of the 24th instant, referred to this office, I have the honor to report:

In 1838, Jenks's patent arm (musket) was submitted for trial to a board of artillery officers, of which General Fenwick was president.

A committee of two members of this board (Major Erving of artillery, and Major Baker of ordnance) was directed to examine the arm and report its opinion on the principles of its construction and its adaptation to the public service.

This committee made a report, which was adopted by the board and transmitted to the Secretary of War, that, in common with other arms loading at the breech, the machinery necessary to its operations is objectionable in Mr. Jenks's invention, and that the arm, although ingenious in its design, is unsuited to the service of troops.

In 1840 some carbines of Jenks's patent construction were procured, a part of which were sent to Florida with a view to their trial in the hands of the dragoons, then in the field in that Territory: and a part to Carlisle Barracks, then a dragoon school of practice, for trial at that place. The officer commanding the dragoons in Florida, Major Fauntleroy, refused to take these carbines into the field, on the ground that his men were ignorant of the use of them, and that he did not feel justified in placing an untried arm in the hands of his soldiers, when the lives and reputations of all were at stake. Those sent to Carlisle Barracks were

tried there, and the officer commanding that station, Captain Sumner, of the First Dragoons, reported that he had tried both Colt's and Jenks's carbines, with no prejudice for or against either of them; that he is satisfied that *Colt's* carbine will not do for military purposes; that *Jenks's* carbine, if reduced six inches in the length of the barrel, and made with a *whole barrel* and a *swivel for the ramrod*, would be by far the best piece we have ever had. He also states no time of any consequence is saved by loading at the breech; that when the piece becomes foul, the gun loading at the muzzle can be fired more rapidly, and that it is infinitely better in all respects. The memorandum of experiments accompanying Captain Sumner's report shows the results of these trials more in detail; a copy of it is enclosed herewith.

Further trials of Jenks's carbine were made in April, 1842, at Fort Adams, by a board of officers consisting of Major Payne and Captain Lowd of the artillery, and Captain Thornton of the ordnance, and this board, after firing four carbines to test their length, force, accuracy, and rapidity of fire, and continuing the firing of one of them to 4,500 rounds to test its durability, reports its opinion that the carbine "is well adapted to and capable of performing all the requirements of service." The last carbine was subsequently fired 10,313 times more, making the whole number of fires it had sustained 14,813 times, when the nipple split, and further firing being impossible without repair, this was reported as the *endurance* of that gun. The reports of these trials at Fort Adams have been printed. They are pretty generally known and can be easily referred to.

After these trials the Secretary of War, Hon. J. C. Spencer, directed that forty of Jenks's carbines, twenty like those furnished to the Navy Department and twenty rifled, should be procured for trial in actual service by the dragoons.

This number and description was accordingly purchased of Mr. Jenks, and issued last May to Companies E and D of the First Dragoons (ten of each kind to each company), for trial in the hands of soldiers in service.

No report of the result of this last trial has been received, but the colonel of the regiment was recently requested to cause one to be made, setting forth specifically the advantage or defects of these arms, so far as they may have been ascertained, with his opinion of them. A note on the muster-roll of Captain Steen, commanding one of the companies to which these arms were issued, states that they are "not worth the store-room they occupy."

The foregoing includes all the trials known to have been made with Jenks's patent arms, and the results as far as they have been communicated to this office.

As the arms of Mr. Jenks are about to be again subjected to a trial by a joint board of Army and Navy officers, in conformity to your orders and those of the Secretary of the Navy, it is possible that some new facts may be discovered in relation to their utility.

The letter of Mr. McKay is herewith returned.

Respectfully, &c.,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Hon. WM. WILKINS,
Secretary of War.

[Letters to W. D., vol. 8, p. 293.]

ORDNANCE OFFICE,
Washington, January 30, 1845.

SIR: I have the honor to present herewith a letter received from the Hon. Osmyn Baker and W. Lucas, the gentlemen representing in Congress the districts in which the two national armories are situated, calling attention to the necessity for increased appropriations to be made at this time for the armories, and requesting to be put in possession of such facts as will enable them to present the matter in a satisfactory manner when it shall come up in Congress.

In compliance, therefore, with their request, I have to state that the annual estimates from this office for the next fiscal year embraced the usual sum of \$360,000 for the national armories, and for various necessities the additional sums, as follows: for Harper's Ferry, \$27,539; for Springfield, \$94,000.

That all these various sums can be usefully expended; that the items set forth under the separate heads are indispensable, and that much more is also required is strenuously urged, and I respectfully refer you to the annual report of operations at the armories, made in conformity to the law of 1794, and sent to Congress early in this month, for much additional information concerning the want of extensive appropriations. Connected with this annual report is an inspection report, carefully made up after a thorough inspection of both armories, to which estimates are appended, setting forth the several objects demanding attention. The amount of these several objects being for Harper's Ferry, \$123,203.94; for Springfield, \$40,000; which last item, from information recently obtained, I desire should be increased to \$60,000. Herewith, also, is an extract of a letter from Major Symington, the officer in charge at Harper's Ferry, giving his views in relation to the subject, in which I fully concur, and respectfully recommend to your consideration.

The expenditures at the armories, particularly at Harper's Ferry, have for two years and a half been on a reduced scale. The state of the Treasury in 1842 induced the Secretary of War to order a cessation of the work at those and other public works, which made it necessary to discharge nearly all the operatives. At the end of that year he authorized the resumption of work on a very limited scale. The change in the model from flint to percussion locks was about to be effected, and what force and means could be controlled was directed to the fabrication of new machines and altering old ones to suit the various changes required, so that up to a late period only a limited force could be employed at Harper's Ferry for want of the necessary machinery. The difficulties are now overcome, and measures are now in train for turning out a greater number of arms at that place than in any former year.

At Springfield the fabrication of percussion arms is fairly established, and 5,400 have already been turned into store. The necessity for great exertions and liberal appropriations to accumulate a reasonable number of percussion arms in a short time are too obvious to require any remarks. The change from the flint to the percussion lock to be useful must be general, and the example of the principal powers of Europe, it is believed, may safely be followed.

Respectfully, &c.,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Hon. WM. WILKINS,
Secretary of War.

ORDNANCE OFFICE,
Washington, January 31, 1845.

SIR: I have the honor to acknowledge reference of a letter from the Hon. T. H. Seymour, requesting, on behalf of the Military Committee of the House of Representatives, to be furnished with the results of experiments made with Colt's improved water-proof cartridges; particularly of the recent experiments made under direction of Colonel Bankhead, at Governor's Island, &c. In reply, I have to say that the result of the experiment last alluded to is not known at this office, no report on the subject having been received.

By direction of the Secretary of War and of the Navy, a mixed board of officers was instituted in April, 1840, consisting of Col. G. Croghan of the Army, Capt. C. S. McCauley of the Navy, and Lient. J. G. Reynolds, of the Marine Corps, to make experiments with, and report on the subject of Colt's tin-foil cartridge.

The board met at Washington Arsenal, and made several experiments, an abridgement of which is herewith appended.

In view of all the facts which presented themselves during the progress of the experiments, they closed their report as follows:

The board relying upon the correctness of the experiments as above recited, are unanimously of the opinion that in reference to the usual incidents of our service, naval as well as military, the cartridge now in use is greatly to be preferred to the tin-foil cartridge submitted by Mr. Colt. It appears evident from the facts set forth by the foregoing experiments that the tin-foil is entirely unsuited for cannon service; yet from its imperviousness to water, the tin-foil cartridges for small arms might be found useful in certain cases. The board would, therefore, recommend the *partial* adoption of the tin-foil cartridge for *small arms*.

In reply to the last inquiry, viz: "What objections, if any, exist to the use of the same in the service of the United States?" I have to say that the several objections found by the board of officers, such as the deposit and incrustation of globules of tin-foil in the bore of the gun, the breaking of a cartridge in ramming it home, and in withdrawing it from the gun, are sufficient to forbid their use for cannon. A large number of cartridges for small arms (250,000) were procured from Mr. Colt, in 1843, for the purpose of trying them in field service, in compliance with the recommendation of the board of officers, although but two experiments with them had been made, the result of which did not appear very satisfactory. No report on the subject has yet been received, from which to form a judgment as to whether they are liable to the same objection as those for cannon, or whether they possess sufficient advantages to justify the increased cost, which is at least twice as much as that of the cartridge in common use.

The letter of the Hon. Mr. Seymour is herewith returned.

Respectfully, &c.,

Hon. WM. WILKINS,
Secretary of War.

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Abridgment of experiments made by a board of officers appointed by the Secretary of War and of the Navy, to make experiments with Colt's tin-foil cartridges.

EXPERIMENT 1, APRIL 10, 1840.

1. Twenty-six cartridges of tin-foil and as many of paper, were fired from well cleaned muskets; no difference was perceptible.

EXPERIMENT 2, APRIL 11, 1840.

2. Five 6-pounder cartridges were fired in rapid succession, with percussion lock; no sponge used; several globules of melted tin were observed adhering to the bore; at suggestion of inventor a greater number were fired in rapid succession, in the expectation that the gun would free itself from any residuum. After firing the twenty-fifth cartridge the gun was examined, and the same effects were visible, proportionally increased. In attempting to withdraw contents of gun after firing, the incrustation, &c., could not be removed with ordinary ladle and worm, and it was extracted with great difficulty. The mass of foil which remains in the gun seems to be that portion of the cartridge which is rear of the vent.

EXPERIMENT 3, APRIL 20, 1840.

3. Four 6-pounder and thirty musket cartridges, all of tin-foil, which had been immersed in water from the 10th instant, were taken therefrom; two of the 6-pounder cartridges appeared to have been injured by accident, the other two were fired and appeared not to have been injured by the water; a dry sponge was used in these firings, and it was burned each time by the contents left in the gun. The musket cartridges were then examined; sixteen of them were selected for firing, seven of which only could be discharged.

EXPERIMENT 4, APRIL 20, 1840.

4. Twenty-five 6-pounder cartridges were fired, using a wet sponge in order to compare with experiment 2; the accumulation of tin-foil was only in the breech of the gun, and was easily withdrawn.

APRIL 20.

5. A 6-pounder cartridge was rammed down with two blows; on being drawn it was found to have broken by the ramming and pierced by the worm.

APRIL 20.

6. Another was then gently placed in the gun, and, being carefully drawn, was found injured in the like manner.

APRIL 20.

7. Twenty-five cartridges closed with a new cement were fired, using a sponge submitted by inventor having a worm in its head intended to extract the foil at each discharge; wet sponge used; the gun was examined after the firing; no deposit was found.

APRIL 20.

8. Twenty-five more 6-pounder cartridges closed with the same cement were fired; no sponge was used to ascertain if the cement had any effect; a quantity of matter deposited; the deposit was different; it adhered so strongly to the bore that it could not be removed by the worm and ladle.

APRIL 21.

9. A 6-pounder cartridge (fired) made with four thickness of tin-foil, and covered with thick, strong paper, was rammed down with usual force; on being drawn it was not broken; the paper was then removed and the cartridge broken by being rammed with two blows.

APRIL 21.

10. Another cartridge was then placed in the gun without being rammed, and was drawn with the sponge having the worm in its head; the foil was pierced and torn by the operation.

APRIL 21.

11. In order to test the relative strength of tin-foil and cartridge paper strips of each were tested; the foil could not support a weight of forty pounds, whilst the paper did not break with the weight of eighty pounds.

[Letters to W. D., vol. 8, p. 293.]

ORDNANCE OFFICE,
Washington, February 8, 1845.

SIR: When it was decided to place the national armories under the charge of ordnance officers. Major Ripley, being then in command of the Kennebec Arsenal, and the inspector of cannon at the foundries, was designated to take charge of the Springfield Armory, and entered on the duty 15th April. 1841. As this movement was but an experiment, the arsenal still remained under his command until the passage of the law of 23d August, 1842, which confirmed the supervision of the armories to ordnance officers.

The duty of inspecting cannon was divided amongst the field officers of ordnance in November, 1841, but since that period a large proportion of this branch of service has been performed by Major Ripley. He is also at the head of the inspections of contract arms, all of which duty is performed under his supervision.

It is not necessary to advert to the unenviable position of the officers at armories, particularly before their employment was sanctioned by law, nor to state the embarrassments then felt, although to be duly estimated they must have been witnessed.

The great benefits resulting to the public interests from the manner in which the duty has been performed, and the universal sentiment of approbation now pervading the community at Springfield, are sufficient testimonials of the peculiar fitness of Major Ripley for the station, and of his devotion to its duties. I therefore respectfully present herewith his claim for allowance, and urge its sanction by the Secretary of War.

I am, sir, very respectfully, your obedient servant,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Hon. WM. WILKINS,
Secretary of War.

[Indorsement.]

The Second Auditor will report to me.

WM. WILKINS.

See act July 5, 1838. Cross 267.

[Inclosure.]

TREASURY DEPARTMENT,
Second Auditor's Office, February 19, 1845.

SIR: I have the honor to return herewith the papers of James W. Ripley, major of ordnance, referred to me on the 17th instant.

In these papers Major Ripley presents a claim for compensation as civil superintendent of Springfield Armory, from the 15th April, 1841—when he was placed in charge—to the 23d August, 1842, amounting to \$2,589.75, which is in addition to his regular pay and emoluments which he received as an officer of the Army for the same time.

In connection with this claim, I beg leave to refer you to the acts of Congress of 3d March, 1835, chap. 26, and of 3d March, 1839, chap. 82, sec. 3, and to the general order of the War Department No. 14, dated 14th March, 1835; all of which are prohibitory of extra allowances.

Lieutenant-Colonel Talcott, while acting in the same capacity, received the compensation as superintendent in addition to his pay and emoluments as an officer of the Army, but this was for services in the year 1833, previous to the passage of the above-named laws of Congress, and under a special order of the Acting Secretary of War, dated the 27th of February, 1837.

Very respectfully, sir, your obedient servant,

W. B. LEWIS.

Hon. WM. WILKINS,

Secretary of War.

Proceedings of a board of officers convened at Washington Arsenal, in pursuance of the annexed orders, marked A and B, from the War and Navy Departments.

WASHINGTON ARSENAL,
January 29, 1845.

The board met in pursuance of the above orders:

Present: Commodore Charles Stewart, of the Navy; Brig. Gen. George M. Brooke, Brig. Gen. George Gibson, of the Army; Commander Levin Powell, of the Navy; Capt. A. Mordecai, of the Ordnance Department.

The board proceeded to examine the percussion lock offered by Dr. Maynard, and which is referred to in the accompanying letter from the inventor to the Secretary of War, marked C.

The lock was taken to pieces by Dr. Maynard, and its construction and operation, together with the arrangement of the primers, were explained by him to the board. In the musket which was presented for this purpose the priming apparatus is adapted to a common flint lock, in which the following alterations are made.

The *pan*, the *battery*, and the *battery spring* are removed, and the *cock* is replaced by a percussion hammer of a peculiar form.

The new magazine for percussion primers is placed on the outer face of the lock-plates, just in front of the hammer, where it is held by two screws, one in the old hole for the battery screw; the other and principal one, in the center of the magazine, passes through a new hole in the lock-plate and serves as a pivot for the magazine, which by means of small set screws can be adjusted in its position so as to present the primers in the requisite manner to the action of the hammer.

The primers are formed of little lozenges of percussion powder inserted, at small intervals apart, between two slips of paper, which are cemented together and varnished in order to secure the powder from the action of moisture; the slip containing the primers is made into a coil and placed in the magazine with one end of it just protruding through a small slit in the upper part, or *face*, of the magazine; the under side of this slit is formed of a steel cutting edge, and the under part of the face of the hammer presents another cutting edge, so that when the hammer

falls the priming lozenge which protrudes from the slit is cut off and carried down almost instantaneously by the hammer to the top of the cone, which is just under this slit, and is there exploded; when the hammer is drawn back again, after passing the half-cock notch, it acts by a simple contrivance on a small ratchet or toothed wheel, the teeth of which work in the intervals between the priming lozenges and thus cause another of them to be protruded through the slit in the face of the magazine ready for the action of the hammer again, so that the piece is primed by the action of cocking it.

For the facility of inserting the primers the cover of the magazine is made to open easily on a hinge, and when closed it is held down by a simple spring catch; the magazine is sufficiently large to contain sixty-five primers at once.

The cone is screwed into a seat which is itself screwed into the side of the barrel in the place occupied by the former vent; the outer end of this seat is supported also by the lock-plate, for which purpose a suitable support is inserted in the notch for the pan.

The advantages which the inventor proposes to obtain by this apparatus are set forth in the accompanying statement, marked D.

The board having examined the apparatus and made arrangements for trying it by a series of fires to-morrow, adjourned until that time.

THURSDAY, *January 30, 1845.*

The board met pursuant to adjournment.

All the members present.

The following trials were made, in the presence of the board, for the purpose of testing Dr. Maynard's apparatus and of comparing his musket lock with the ordinary percussion lock.

1. A common percussion musket and the musket with Maynard's lock were fired together, by two men of nearly equal expertness, the advantage in point of quickness in loading being first ascertained, by trial with two percussion muskets, to be a little in favor of the man who fired the common musket; blank cartridges were used; the caps for the common lock were carried in the pocket of the man who fired the musket. Twenty rounds were fired with Maynard's musket in 6 minutes, whilst there were 2 rounds for the common musket left and 1 in the barrel out of 20 charges. With Maynard's musket there was no misfire; with the common musket, 1 snap and 1 attempt to fire without putting on a cap.

The slips of priming for Maynard's lock contained only 35 primers. After this the percussion caps were laid on a table for the common musket.

2. The muskets were exchanged (after being cooled) by the two men. The result with Maynard's musket was the same as before, 20 rounds in about 6 minutes, although it was necessary to renew the slip of primers. With the common musket there were 2 flashes of caps, owing to the choking of the communication between the cap and the charge, rendering repeated ramming necessary. Six rounds were left when the 20 had been fired with Maynard's lock.

3. The muskets were put into the hands of two other men, with the same result as before with Maynard's lock, 20 rounds in 6 minutes; with the common musket, 4 rounds left and 1 in the barrel out of 20 charges.

4. The muskets again exchanged by the last two men. With Maynard's musket nearly the same result as to time of firing 20 rounds; 3 flashes of priming occurred from the choking of the priming canal

in the cone seat. With the common musket 1 cap flashed: 1 cartridge out of 20 was left when the other musket had fired the 20 rounds.

5. With the common musket in the hands of the first man who had fired it to-day, 20 rounds were fired in 7 minutes; 2 caps missed fire. With Maynard's musket it was necessary to renew the priming, and in doing so the two last primers which do not come under the action of the ratchet, and which cannot therefore be pushed out by it to receive the stroke of the hammer, were left in the magazine and caused the new slip of primers to get choked in the throat of the opening through which they are protruded when fired; this caused some delay and made it necessary to open the magazine and take out the old primers, which resulted in leaving 4 charges unfired after the 20 rounds had been discharged with the common musket.

After these 100 rounds the muskets were cleaned. Maynard's musket was then fired with ball cartridges, as follows:

6. Twenty rounds in 7 minutes; the balls of the cartridges were of irregular size, and several of them stuck and required hard ramming to force them down.

7. Twenty rounds in 10 minutes; the priming had to be removed; there was 1 snap, and 1 ball stuck in the barrel.

8. Twenty rounds in $7\frac{1}{2}$ minutes; 2 balls stuck in loading; there were 2 snaps, owing to the priming not being forced out by the ratchet; on examination this was found to be caused by loosening of the pivot-screw of the ratchet-wheel, which caused the ratchet to turn too easily; the tendency of the loosening of this screw is also to force open the lid of the magazine; the snap in the preceding 20 rounds was probably caused by the same circumstance.

9. Twenty rounds in 8 minutes; the magazine was made wet by pouring about a pint of water over the lock, the muzzle of the gun being down; 1 primer missed fire.

10. Twenty rounds in 8 minutes; the magazine was opened and filled with water before the firing commenced; 1 primer missed fire. The priming (being exhausted) was renewed and the magazine again filled with water, no more primers missed.

11. After cooling the piece, water was again poured into the magazine and remained about 3 minutes before the firing commenced. After firing about 10 rounds the priming appeared to be much damaged; 7 primers failed to fire; the 20 rounds were, however, discharged in about $8\frac{1}{2}$ minutes. On the last fire the flame communicated to the primers in the magazine and caused the explosion of about 6 primers, from the throat down.

From the appearance of the apparatus the flame seemed to have entered not by the throat, but by the lid becoming slightly opened; this, however is not certain. The explosion of the primers did not throw open the lid of the magazine entirely, and caused so little disturbance of the parts, that in the heat of an action the fact would hardly have been observed immediately by the man who was firing the piece.

It is to be observed that when water was poured into the magazine it soon passed out when the piece was being loaded; but much moisture was necessarily retained by the form of the magazine and by adhesion to the parts of it and to the primers so that the test of the priming was a severe one with respect to the *quantity* of moisture to which it was exposed, though not as to the time of exposure.

The inventor stated beforehand that, in consequence of defects in the varnish, he was aware that the primers are not perfectly water-proof;

but he thinks they may be made so, or at least may be made to bear a very long exposure to moisture. After the above trials, the piece was snapped about 20 times in a high wind, turning it in different directions to the wind, upside down, &c.; but the primer never failed to be carried on to the cone and to explode there.

Board adjourned until to-morrow.

FRIDAY, *January 31, 1845.*

The board met pursuant to adjournment.

All the members present.

In continuation of the examination of Maynard's lock, it was tried by catching the head of the cock under the edge of a table, to see if it were liable to accidental explosion of the primers; in the course of this trial, the end of the spring which moves the ratchet became bent backwards, so as to work on the wrong side of the ratchet, which, therefore, ceased to operate on the primers, and the action of the lock was consequently impeded.

The quickness of *priming* the gun with this lock was tried by snapping it and a common percussion lock at the same time; the caps for the latter were put in the pocket of the man who held the musket; and Maynard's musket was snapped by the inventor himself; the experiment was tried in the open air, while a cold northwest wind was blowing. During the time that 99 primers were snapped on Maynard's, including two changes of the charge of primers in the magazine, 64 caps were snapped on the common lock. With Maynard's lock there was no misfire; the lid of the magazine was partially opened at almost every snap, and the pivot-screw of the ratchet-wheel required to be twice screwed up. With the common lock there was one misfire, owing apparently to the cap not having been charged.

The board proceeded to examine Jenks's carbine, which was brought before them by the accompanying letter from the inventor, marked E, referred to the board by the Secretaries of the War and Navy Departments.

The carbine was exhibited by Mr. Jenks and taken to pieces, and its construction explained to the board.

After examination of it, the board adjourned until Monday next.

MONDAY *February 3, 1845.*

The board met pursuant to adjournment.

All the members present.

The board examined the subject of using cast steel for rifle barrels, which was brought before them by the accompanying letter from Mr. Samuel Remington, marked F, referred to them by the Secretaries of the War and Navy Departments.

Mr Remington exhibited to the board a cast-steel rifle barrel, and explained to them the advantages which he considered it to possess over iron barrels.

After discussion of the subjects submitted to their examination, the board came to the following conclusions:

1. *With respect to Maynard's lock:*

That the *principle* of the lock, that of self-priming, is adapted to the military service as well as to fire-arms for private use, and that the mode of applying that principle which is now offered to their examination is exceedingly ingenious, and accomplishes most of the objects and advantages claimed by the inventor; but that in the details of the arrange-

ment of the apparatus there are mechanical defects which have appeared on trial, but which it is thought may be remedied with little difficulty.

Captain Mordecai proposed as the opinion of the board: That although the principle and construction of this lock is exceedingly ingenious and well adapted for private fire-arms, the apparatus as now arranged is too complicated to be adapted for the military service; the number of pieces in the lock being nearly doubled, and most of the new parts being very small, and therefore easily lost in repairing and cleaning the arm. Captain Powell concurs in this opinion; the other members of the board dissenting.

2. *With regard to Jenks's carbine:*

The board is of opinion that it presents in an eminent degree the advantages which generally attend arms loading at the breech, of propelling the ball with great force (in proportion to the charge used and the length of barrel) and of being loaded with facility and dispatch in situations where the use of the rammer would be inconvenient, such as in boats, in the "tops" of ships, &c., as well as in cavalry service. The arrangements adopted for obtaining these advantages appear to the board to be ingenious and in many respects well adapted to the purpose; but whether they are entirely free from the objections which have heretofore been found to attend contrivances for loading at the breech cannot be determined by any experiments which it is in the power of the board to make. As the experiments heretofore made with this carbine appear to have satisfactorily established the safety of its use in ordinary service, and as it is understood that a considerable number of these arms have been procured and are now under trial in the hands of troops, both military and naval, the board are of opinion that it would be unnecessary and unfair to come to any decision as to the adoption of them to military purposes until the results of these trials are known.

3. *With regard to the use of cast-steel barrels for rifles, carbines, &c.:*

The board regard this as a mere question of practical mechanics, which can be much better decided by means of the information possessed by the Ordnance Departments of the military and naval services than by any examination which it is in the power of this board to give it; but it appears to them that a merely general knowledge of the relative qualities of steel and iron is sufficient to establish some great advantages of cast steel over iron for the purpose under consideration. These advantages consist in greater homogeneity of texture and consequent freedom from flaws; in superior strength; in greater hardness and durability; and above all in greater smoothness of surface in the bore, a consideration of primary importance for rifle barrels.

The board have no means of estimating the relative expense of the two materials when wrought with gun barrels, as the saving of condemned work which would doubtless occur from the use of steel barrels may more than compensate for the greater first cost of material; but they have no hesitation in saying that unless the advantage of expense is greatly in favor of the iron barrel, or some other consideration apart from the intrinsic qualities of the material should prevent the use of cast steel, the latter material may, with great advantage, be used in the manufacture of gun barrels.

It was directed by the board that a report of their opinions should be prepared in accordance with the above views, and the board then adjourned until to-morrow.

WEDNESDAY, *February 5, 1845.*

The board met (having been prevented by the weather from assembling yesterday) and approved and signed the report drawn up agreeably to the above decision. The board then adjourned *sine die*.

A. MORDECAI,
Captain of Ordnance.

[Inclosure A.]

[Special Orders No. 3.]

ADJUTANT-GENERAL'S OFFICE,
Washington, January 21, 1845.

The Secretary of War directs that Bvt. Brig. Gens. G. M. Brooke and George Gibson, and Capt. A. Mordecai, of the ordnance, be detailed as a board (in conjunction with such officer or officers of the Navy as may be designated by the head of that department) to meet at the Washington Arsenal as soon as practicable, for the purpose of examining the percussion lock for fire-arms recently invented by Dr. Edward Maynard, and reporting upon its adaptation to the service.

By order:

L. THOMAS,
Assistant Adjutant-General.

[Inclosure B.]

NAVY DEPARTMENT,
January 23, 1845.

GENTLEMEN: Dr. Edward Maynard, of Washington, has recently invented a percussion lock for fire-arms, and requested that a mixed board of Army and Navy officers may be appointed to examine and report upon the same. The Secretary of War has designated Bvt. Brig. Gens. G. M. Brooke and G. Gibson and Capt. A. Mordecai on the part of the Army, and you are selected on the part of the Navy.

You will meet for the purpose at the United States arsenal in Washington, at as early a day as practicable, and after examining the lock, in conjunction with the officers of the Army above named, you will report jointly to each department your opinion of its adaptation to the public service.

I am, very respectfully, your obedient servant,

S. Y. MASON.

Commodore CHARLES STEWART, U. S. Navy,
Commander LEVIN M. POWELL, U. S. Navy,
Washington.

[Inclosure C.]

SIR: The new percussion gun-lock and priming, for the purpose of trying which your department granted me the use of a number of muskets some months since, have, it is believed, been brought to such a degree of perfection as to justify me in asking for an official trial and report of their fitness for the purpose intended.

Not having funds to enable me to do so I have not secured my patents abroad, and as it is not necessary, in other countries than ours, that the patentee should be either the inventor or his legal representative, I trust you, sir, will see and admit the propriety, as an act of simple justice to me, of having the proposed trial made in the presence of those only who shall be appointed to make it (excepting the inventor or his friends), and that they be directed to give no information of the invention, excepting such as shall be embraced in their official report; of having the trial and report made as early as practicable, consistent with a series of thorough experiments; and of having the trial made at some military post within this District, at the nearest point where the government has troops.

Every principle upon which my invention rests is so simple, demonstrable, and self-evident that the whole range of experiments can be made within a short time, and with the military means near at hand, without resorting to protracted trials and at points distant and detached.

Without this precaution as regards secrecy, time, and distance in making the trial and report, I should hazard the invasion of my invention, with the loss of every benefit that I might expect from abroad.

You can, sir, readily appreciate the importance to me of an early decision. In the first place, it grows out of my desire to make the result available; and, secondly, as foreign governments having large armies and navies have signified, through their ministers here, their anxiety to have the earliest possible use of the invention, it is but fair also to presume that should the report be favorable, the United States Government would be as anxious to have the benefits of its adoption at the earliest practicable moment. I ask your favorable consideration of my suggestions.

With great respect, your obedient servant,

EDWARD MAYNARD.

HON. WM. WILKINS,
Secretary of War.
WASHINGTON CITY,
January 15, 1845.

[Inclosure D.]

The following statement of advantages possessed by the new gun lock and priming is respectfully submitted to the consideration of the board of trial by their most obedient servant, the inventor,

EDWARD MAYNARD.

WASHINGTON, *January, 1845.*

1st. The priming costs no more than the caps now made by the United States Government: the same number of charges occupy only about one-tenth the space, and are of only about one-fifth the weight.

2d. The hammer can be carried resting upon the cone with perfect safety, thus lessening the risk of damage to the interior lock-work, while the face of the hammer, accurately fitted by repeated blows to the face of the cone, effectually shuts out water from the vent.

3d. The priming apparatus is as firmly secured and as capable of withstanding violence as any other part of the gun.

4th. The gun, not being primed when the hammer is down, or at half-cock, cannot be fired from either of those positions.

5th. By the simple motion of the hammer from "half-cock" to "cock" the gun is primed with a mathematical certainty and precision unattainable by hand, without regard to the position of the gun, or to heat or cold, or light or darkness; in fair weather or foul, rain, hail, or snow, or fog, or even after immersion in water; whether the soldier be in haste or at ease, attentive or not, skillful or awkward.

6th. The lowest degree of intelligence ever found in the soldier is sufficient to enable him to understand the nature of the priming, and to apply it to the gun for use in less time than it would take him to prick a flint.

7th. The priming requires no tools, implements, or appendages for its application to use.

8th. The priming apparatus is not liable to any perceptible wear in some thousand of discharges, and when worn can be easily and readily repaired anywhere.

9th. No pieces of metal or other dangerous missiles are thrown off from the priming.

10th. It is impossible that the soldier should lose his priming, as it cannot be separated accidentally from the gun.

11th. The cone, being shorter and thicker than the cone for the cap, is less liable to be broken off or split.

12th. Should the priming apparatus be damaged, it may be replaced by another in a few minutes by the armorer or even by an intelligent soldier, no tools except a screw-driver being necessary for the repair.

13th. The detonating matter can never, by jarring or being jolted about, get out of its proper place.

14th. The soldier applies the priming to the gun when at leisure—not when on duty or in action, unless, as is seldom or never the case, he has to fire more than fifty rounds in one battle.

15th. All waste of powder from the open cartridge will be avoided, as the cartridge is not opened until after the soldier has "cast about"; it is then "handled," "torn," and carried directly to the muzzle of the gun and inserted.

16th. A great saving of time will be effected in loading, as the whole manipulation of priming is dispensed with: thus simplifying very greatly the operations of the soldier in action, and consequently increasing the efficiency and celerity of his fire.

17th. No "blowing up" of the priming can happen from its use, as there is no fulminate or other easily combustible matter at the point where it is cut off.

18th. No jarring, such as is produced by coming to "order arms" upon a stone, or striking the hammer in getting over fences, upon any side or in any direction, or catching the hammer among limbs or twigs of trees, or trappings of horses, or dress of sol-

diers, or rigging of vessels, or hooking the hammer on to boats or vessels to pull along-side, or any other possible accidental disturbance of the lock can produce an explosion.

19th. The priming is so made as to be unimpaired by keeping for any length of time in any climate, to as perfect a degree as any other percussion priming.

20th. The apparatus for using the priming may be placed upon the top, bottom, or either side, or in the interior of the gun.

[Inclosure E.]

Washington, January 25, 1845.

SIR: Understanding that a mixed board of Army and Navy officers is about to convene at the Washington Arsenal to test the percussion lock invented by Dr. Edward Maynard, I respectfully request that the same board be instructed to examine and test my carbine, and that it report its opinion of its adaption to the public service.

I have the honor to be, with great respect, your obedient servant,

WM. JENKS.

Hon. WM. WILKINS,
Secretary of War.

Referred to the board of officers charged with the examination of Dr. E. Maynard's percussion lock and priming for fire-arms, for examination and report.

WM. WILKINS,
Secretary of War.
J. Y. MASON,
Secretary of the Navy.

January 25, 1845.

[Inclosure F.]

WASHINGTON, January 27, 1845.

SIR: Having been apprised that a board of officers were about to meet for the purpose of examining a new method of priming, together with Mr. Jenks's carbine, I have been induced by the Ordnance Department, both of the War and Navy, to have my cast-steel barrel submitted to the same board for examination.

I would respectfully suggest that the board be directed to report upon the *practicability* of adopting steel in the place of iron barrels for all small arms, such as rifles, carbines, and pistols.

Very respectfully, your obedient servant,

SAML. REMINGTON,

Hon. WM. WILKINS,
Secretary of War, Washington.

Referred to the board charged with the examination of Dr. E. Maynard's percussion lock and priming, for examination and report.

WM. WILKINS,
Secretary of War.
J. Y. MASON,
Secretary of the Navy.

January 27, 1845.

[Inclosure.]

To the Hon. the SECRETARIES OF THE WAR AND NAVY DEPARTMENTS:

The joint board of Army and Navy officers directed to examine a new percussion lock for small arms invented by Dr. Ed. Maynard, and to whom were also referred the examination of Jenks's carbine, and the subject of using cast-steel in the manufacture of gun barrels, have the honor to report that they assembled at Washington Arsenal, in pursuance of their instructions, on the 29th January last, and after examination of the subjects submitted to them they have arrived at the following conclusions:

1st. *With respect to Maynard's lock:*

The board is of opinion that the principles on which this lock and its

priming are constructed may be applied with great practical utility to fire-arms in general, and that they are applicable to small arms for the military and naval services; that the apparatus for this purpose is exceedingly ingenious, and accomplishes most of the objects proposed by the inventor.

The lock and priming effect with great certainty the primary object of igniting the charge in the barrel, even under very unfavorable circumstances.

The priming is probably as well secured from the action of moisture as that in the ordinary percussion cap, and its use appears to be attended with little risk of accident.

When the apparatus is in good order the piece is primed with perfect regularity by the simple action of cocking, so long as the supply of priming lasts; and this supply, which is sufficient for more than 60 rounds, may be renewed with little difficulty or loss of time. The quickness of firing is therefore increased by nearly all the time required for putting on the percussion, which is found to make a difference of about 20 or 25 per cent. in favor of the musket with Maynard's lock.

The difficulties which present themselves in the use of the common percussion lock with respect to a convenient mode of carrying the primers, and the facilities of using them in cold weather or in the dark, are nearly all avoided by the use of this lock.

These advantages and others attending the construction of this lock, when the apparatus is in good order, have induced the board to entertain the favorable opinion above expressed as to the principles of the invention; but in the course of the experiments made by the board it has been found that there are some imperfections in the mechanical arrangement of the apparatus which render it liable to derangement and impair the safety and certainty of its action.

The nature of these defects may be seen by reference to the record of experiments which accompanies this report; they are not here mentioned in detail because they are regarded by the board merely as imperfections in the mechanical execution of the work, which may be easily remedied and which do not affect the principles on which the lock is constructed.

2d. *With respect to Jenks's carbine:*

The board is of opinion that this carbine combines, in an eminent degree, the two great advantages attending arms loading at the breech, that of propelling the ball with great force, and that of being loaded rapidly and easily in situations where the use of the rammer is inconvenient; the latter consideration would recommend it for use in boat service and in the "tops" of vessels, as well as in cavalry service.

The arrangements adopted by Mr. Jenks for effecting the above objects appear to the board to be ingenious and in many respects well adapted to the purpose; the numerous trials heretofore made with this carbine seem to have shown that the apparatus possesses sufficient strength and security from accident in common practice, but whether it is entirely free from the objections which have been heretofore found to attend contrivances for loading at the breech it is not in the power of the board to determine.

As it is understood that a considerable number of these arms have been procured and that they are now under trial in the hands of the troops both of the Army and Navy, the board think that it would be unfair and unnecessary to come to any decision as to their adaptation to military purposes or to propose any definite action on the subject until the results of those trials are known.

3d. *With respect to the use of cast-steel for gun barrels:*

The board regards this as a question in practical mechanics, which can be better decided by means of information possessed by the Ordnance Departments of the Army and Navy than by any examination it is in the power of this board to give it; at the same time, it appears to them that a mere general knowledge of the relative qualities of steel and iron may enable them to point out some great advantages of the former material over the latter for the making of gun barrels. These advantages consist in greater homogeneity of texture, and consequent freedom from flaws and inequalities in the bore; in superior strength; in greater hardness and durability; and above all in greater smoothness of surface in the bore, a quality of primary importance in barrels for rifles or for small arms in which the ball is "slugged."

The board have no means of estimating the relative cost of steel and iron when wrought into gun barrels; this can be determined only by comparative trials in the manufacture of them on a large scale, for it may be found that the saving in work rejected on inspection which would doubtless occur from the use of steel barrels will more than compensate for the greater first cost of the material; but they have no hesitation in saying that steel may, with great advantage, be substituted for iron in the manufacture of gun barrels, unless the use of it should be attended with great increase of expense, or should be prevented by some other consideration apart from the intrinsic qualities of the metal.

CHAS. STEWART,
United States Navy.

GEO. M. BROOKE,
Brevet Brigadier-General, United States Army.

GEO. GIBSON,
Brevet Brigadier-General, United States Army.

L. M. POWELL,
Commander, United States Navy.

A. MORDECAI,
Captain, Ordnance Department.

Second report of a board of officers of the Army and Navy, reconvened in pursuance of the annexed orders (marked 1 and 2) for the examination of Dr. Maynard's percussion lock and primers.

WASHINGTON, Wednesday, February 26, 1845.

The board met pursuant to notice from Commodore Stewart; all the members present.

Dr. Maynard submitted to the board a musket to which he had adapted a priming apparatus, with improvements, intended to remove the objections made to some of the mechanical arrangements which were found defective on the former trial. The number of parts of which the apparatus consists has been reduced by the omission of several of the small parts. The magazine for primers has been better secured against the accidental opening of the lid and against the penetration into it of the blast from the vent. The arrangement of the magazine on the lock-plate has been slightly changed, so as to admit of using a cone which will receive the common percussion cap.

The apparatus was examined by the board, and the operation of it on the primers was tested by snapping the lock and exploding the primers a great number of times without a charge in the barrel. It was found that, in consequence of the want of due proportion between the thick-

ness of the priming lozenges and the width of the throat of the magazine, through which the primer is protruded, the slip of primers was liable to be choked in the throat of the magazine, so as to impede the action of the lock. In order to give time for remedying this defect, the board, after ordering a trial by firing to be made at the arsenal to-morrow morning, adjourned until 11 o'clock to-morrow.

February 27, 1845.

The following trials were made at the arsenal, in presence of Captain Mordecai, with Dr. Maynard's musket, using blank cartridges.

1. 25 rounds were fired in quick succession. Four primers *flashed* without firing the charge, owing probably to some obstruction in the vent.

2. After cooling the piece, 25 rounds more were fired without any failure or accident.

3. With the hammer let down on the cone, water was poured freely over the lock when it was found that none of the primers would burn. These slips of priming were originally too wide for the depth of the magazine, and in order to put them in place it was necessary to trim off the edges, which removed the varnish from that part and caused the paper and powder to be exposed to the water which entered the magazine through the throat. Without drying the interior of the magazine, another slip of primers was inserted, nearly all of which exploded effectively under the hammer. When the paper became moist it no longer retained the requisite hardness and stiffness for receiving the due action of the ratchet wheel by which the primers are fed up, and they consequently became choked in the throat of the magazine. This action of moisture entering the magazine is the only defect observed in the trials to-day.

4. 50 rounds were fired, without cleaning the magazine or the musket, and all without any accident or failure. It appears that it is possible, in cocking the piece, to draw the hammer a little too far back, beyond the "cock" notch, by which the primers may be protruded so far as to cause an irregularity in cutting them off at the proper intervals; but this is merely a defect in the adjustment of the tumbler and need not form an objection to this mode of priming, if the work on the lock is accurately executed.

5. The regularity of the action of the lock was further tested by firing about 100 primers without a charge in the musket. No further defect or irregularity was observed.

The result of these trials having been reported to the board, who met for that purpose at 11 o'clock (all present), they agreed on the following opinion:

OPINION.

The board are of opinion that the improvements made by Dr. Maynard in his priming apparatus, since their last examination and trial of it, have remedied the imperfections which were then observed in it. The slight irregularities which are now found to exist in the action of the priming apparatus are to be attributed chiefly to a want of uniformity in the manufacture of the primers themselves, which have been made with imperfect machinery; but the board think that, in the present condition of the lock and priming, their operation is sufficiently safe, regular, and effective to authorize them to recommend the invention to the patronage of the government to such an extent as may be necessary for giving it a full and fair trial in service.

The board have come to this conclusion with the less hesitation, because the flint-lock musket can be altered by the adaptation of this priming apparatus in such a manner as still to permit the use of the common percussion cap; so that the arms thus altered will not be rendered unfit for service, even if it should be found, on trial, that the new apparatus has some defect, not yet apparent, which may prevent its general adoption for the military service.

CHAS. STEWART, *Navy*,
 GEO. M. BROOKE,
Brevet Brigadier-General, U. S. A.
 GEO. GIBSON,
Brevet Brigadier-General, U. S. A.
 L. M. POWELL,
United States Navy.
 A. MORDECAI,
Captain of Ordnance.

[Inclosure 1.]

ADJUTANT GENERAL'S OFFICE,
Washington, February 20, 1845.

SIR: By direction of the Secretary of War, the board of officers instituted by Special Orders No. 3, of January 21, 1845, will reconvene at as early a day as practicable, for the purpose of re-examining Dr. Maynard's invention of percussion locks for fire-arms, he having reported that he believes he has removed the mechanical defects pointed out by the board, to which measure the Secretary of the Navy has assented and will doubtless give a corresponding order.

I am, sir, your obedient servant,

L. THOMAS,
Adjutant-General.

To Brig. Gen. G. M. BROOKE,
Fifth Infantry, Washington, D. C.

[Inclosure 2.]

NAVY DEPARTMENT,
February 20, 1845.

SIR: Dr. Maynard requests that the joint board of Army and Navy officers may be convened again to re-examine his priming apparatus, believing that he has removed the objections which the board pointed out.

You will be pleased to meet the officers of the Army and, after making the examination asked for, report whether, in your opinion, the defects have been removed.

I am, very respectfully, yours,

J. Y. MASON.

Commander L. M. POWELL,
United States Navy, Washington.

[Inclosure 3.]

WASHINGTON, *February 28, 1845.*

SIR: I have the honor to inclose herewith the report of the joint board of officers of the Army and Navy reconvened in pursuance of instructions from the War and Navy Departments, for the purpose of examining Dr. Maynard's improved percussion locks.

I am, very respectfully, your obedient servant,

A. MORDECAI,
Captain of Ordnance.

To the Hon. WM. WILKINS,
Secretary of War.

Record of the proceedings of a board of officers of the Army and Navy of the United States, constituted and convened by the annexed authorities (numbered from 1 to 5), to report to the War and Navy Departments in relation to the proposition of Dr. E. Maynard, hereto appended, marked A, and its expediency, and the extent to which contracts ought now to be carried by each of the departments.

WASHINGTON, Saturday, March 15, 1845.

The board met; present, all the members and the recorder. The authorities by which the board is constituted and convened, together with Dr. Maynard's propositions, and a report of a board of Army and Navy officers who had tried his invention, were read, and Dr. Maynard's plan and others for altering the flint to the percussion lock were examined and compared. The board, after due consultation and deliberation, adopt the following

REPORT.

The board of Army and Navy officers appointed under the foregoing authorities to determine certain written propositions of Dr. Edward Maynard, submitted to them and now before this board, respecting an improvement in fire-locks, have had the subject under consideration, and unanimously recommend that contracts be made by the proper authorities with the said Maynard, as follows, viz: A contract by the War Department for four thousand arms, and by the Navy Department for one thousand arms, making in all five thousand arms, on the conditions stated in the proposition submitted by him. But the board suggest that a condition be inserted in the said contracts to this effect: that if, when the improvement of the said Dr. Maynard shall have been duly subjected to the second or practical test, or actual service, it shall be found as valuable as it now promises to be, on the first or scientific test, the War and Navy Departments, or either of them, shall be at liberty to apply the said improvement to any greater number of fire-locks at the diminished rates of compensation, according to the written propositions of the said Dr. Maynard, counting, in the payments, the number of arms before contracted for as a part of any greater number subsequently needed by government; and, further, should the government, or either the War or Navy Department, desire to apply the same improvement in any number of fire-arms exceeding one hundred thousand, the rate of payment for such further privilege shall not exceed twelve and a half cents per fire-lock, including the right of making and using a sufficient supply of priming for the number of arms that may be contracted for.

WINFIELD SCOTT,

Major-General, President of the Board.

CHARLES MORRIS,

Captain, United States Navy.

W. M. CRANE,

United States Navy.

JAS. G. TOTTEN,

Chief of Engineers.

WM. MAYNADIER,

Captain of Ordnance, Recorder.

[Inclosure 1.]

WAR DEPARTMENT, March 13, 1845.

SIR: I respectfully propose for your approbation to submit the within proposal of Dr. E. Maynard to a board of officers composed of Major-General Scott and Colonel

Totten, of the Army, and Commodores Morris and Crane, of the Navy, to report on the proposition, and, if approved in whole or in part, to recommend to what extent it is deemed advisable for the departments to contract with Mr. Maynard at this time.

As soon as advised of your approval and orders in the case, corresponding orders will be given to General Scott and Colonel Totten by this department.

Very respectfully, your obedient servant,

W. L. MARCY,
Secretary of War.

Hon. GEO. BANCROFT,
Secretary of the Navy.

[Inclosure 2.]

NAVY DEPARTMENT, *March 13, 1845.*

SIR: I have the honor to acknowledge the receipt of your letter of this date, and to inform you that instructions have been given, copy of which is inclosed, to Commodores Morris and Crane to meet General Scott and Colonel Totten, to report on the proposition submitted by you from Dr. Edward Maynard, for selling to the United States the right to make and use his patent percussion priming and lock.

Dr. Maynard's proposition is herewith returned.

I am, very respectfully, your obedient servant,

GEO. BANCROFT.

Hon. WM. L. MARCY,
Secretary of War.

[Inclosure 3.]

NAVY DEPARTMENT, *March 13, 1845.*

GENTLEMEN: In accordance with the recommendation of the Secretary of War, contained in his letter of this date, copy of which is inclosed, you will be pleased to meet General Scott and Colonel Totten, and, after consultation, report to each department on the proposition of Dr. Edward Maynard, which will be submitted to you, to sell to the United States the right to make and use his percussion priming and lock, for which he has obtained a patent.

I am, very respectfully, your obedient servant,

GEO. BANCROFT.

Commodore CHARLES MORRIS,
Commodore WM. M. CRANE,
United States Navy, Washington.

[Inclosure 4.]

WAR DEPARTMENT, *March 14, 1845.*

SIR: I transmit herewith a proposition of Dr. E. Maynard to sell to the United States the right to manufacture and use his patent invention of percussion lock and priming for muskets, with copies of correspondence between this department and the Secretary of the Navy, showing that Commodores Morris and Crane will be associated with yourself and Colonel Totten, to compose a board to report to both departments as early as may be convenient in relation to the proposition and its expediency, and the extent to which contracts ought now to be carried by each of the departments.

Very respectfully, your obedient servant,

W. L. MARCY,
Secretary of War.

Major-General W. SCOTT,
Commanding the Army.

[Inclosure 5.]

HEADQUARTERS OF THE ARMY,
Washington, March 14, 1845.

The undersigned having been appointed, with Colonel Totten, on the part of the Secretary of War, to meet Commodores Morris and Crane, appointed on the part of the Secretary of the Navy, as a board to determine on certain propositions submitted by Dr. Edward Maynard respecting his "improved musket lock and percussion priming," the officers of the two services above named will please meet the under-

signed to-morrow, at noon, in the room next to the Quartermaster's Office, under the Engineer Department, diagonally opposite to the War Building.

Captain Maynadier, of the Ordnance Department, is appointed recorder to the board.

WINFIELD SCOTT,
Major-General, &c.

[Inclosure A.]

As a board of officers of the Army and Navy have reported favorably on my patent invention of an improved musket lock and percussion priming, I respectfully offer for the approbation of the Secretaries of War and the Navy to sell to the United States the right to make and use my percussion priming and lock for—

5,000 muskets for \$5,000.

10,000 muskets for \$7,500.

20,000 muskets for \$10,000.

100,000 muskets for \$25,000.

The right of making and using the priming, however, is not to extend beyond the necessary supply for the muskets that may be contracted for under this proposition.

EDWARD MAYNARD.

WASHINGTON, March 13, 1845.

ORDNANCE OFFICE, March 13, 1845.

I respectfully recommend the above proposals of Dr. Maynard to the favorable consideration of the Secretary of War.

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

[Indorsement on the report of the board.]

The within report of the board is approved so far as it comes within the jurisdiction of this department, and is referred to the Ordnance Bureau to be carried into effect.

W. L. MARCY,
Secretary of War.

WAR DEPARTMENT, March 18, 1845.

Contract authorizing United States to use percussion lock and priming.

This agreement, made at Washington City, D. C., this twentieth day of March, one thousand eight hundred and forty-five, between the Honorable William L. Marcy, Secretary of War, for and in behalf of the United States of America, of the first part, and Edward Maynard, of Washington City, D. C., of the second part, witnesseth:

Whereas the said Edward Maynard has invented an improved lock and percussion priming for muskets and other small arms, and has secured the said improvement by letters patent from the United States of America; and whereas the said Maynard has proposed to sell to the Government of the United States the right to use the said improvements on certain expressed conditions:

Now, therefore, in consideration of the sum of four thousand dollars, to be paid to the said party of the second part on the signing, sealing, and delivery of this agreement, the said Maynard does hereby bargain, sell, assign, and convey to the United States the privilege and right to make and use and apply the said improvements in the percussion lock to a number of muskets or other small arms not exceeding four thousand, and also to make and use a sufficient quantity of the said improved priming for the before-mentioned number of muskets or other small

arms; and it is further expressly understood and agreed that, in case the Government of the United States should hereafter wish to apply this improvement to any greater number of arms, during the continuance of the said patent right, than is herein provided for, and to make and use the improved priming therefor, it shall have the privilege and right of so doing by paying the said Maynard at the diminished rates, according to the number of arms to which the improvement may be applied, set forth in the offer of said Maynard, in the following words, viz: "I respectfully offer for the approbation of the Secretaries of War and the Navy to sell to the United States the right to make and use my percussion priming and lock for 5,000 muskets for \$5,000, for 10,000 muskets for \$7,500, for 20,000 muskets for \$10,000, for 100,000 muskets for \$25,000. The right of making and using the priming, however, is not to extend beyond the necessary supply for the muskets that may be contracted for under this proposition;" provided that the payment of four thousand dollars, to be made in compliance with this agreement, shall be counted as a part in the payment for any greater number of arms that may be made or altered to possess the said Maynard's improvements; and provided further, that in case the government shall wish to apply the said improvement to any number of arms exceeding one hundred thousand, and to make and use the priming for the same, it shall have the privilege and right of doing so by paying the said Maynard therefor at a rate subject to further agreement, not to exceed twenty-five cents for each arm so improved, including the priming therefor. It is also understood that the fabrication and use by the United States of the improved priming is to be limited to the quantity required for the arms that may be made or altered according to said Maynard's improvement, and for use in the public service only.

It is further agreed and understood that the privilege and right of making or altering such number of fire-arms as now are or may hereafter be contracted for with the said Maynard, together with a sufficient quantity of priming therefor, shall include all and every improvement that may hereafter be made by said Maynard on the same principle.

In witness whereof the parties of the first and second part have hereto set their hands and affixed their seals the day and year hereinbefore written.

W. L. MARCY,
Secretary of War.

EDWARD MAYNARD.

[Seal of War Office.]

[SEAL.]

[Miscellaneous Letters, vol. 36, p. 161.]

ORDNANCE OFFICE,
Washington, February 8, 1845.

SIR: I have the honor to inclose herewith the statement which you requested yesterday, of the number and classes of muskets at the arsenals and armories.

I am, sir, &c.,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Hon. J. J. MCKAY,
House of Representatives.

Statement of the number and classes of muskets at the United States arsenals and depots.

Class.	National armory.	Contract.	Total.
1st class.....	217,953	24,116	242,069
2d class.....	61,550	4,090	65,640
3d class.....	132,955	17,655	150,610
4th class.....	13,052	6,526	19,578
Total.....	425,510	52,387	477,897
Remaining to be inspected.....			170,369
Aggregate on hand.....			648,266
Total number sold of 4th class.....			46,342

It has been found that of 240,532 national armory muskets presented for inspection, 46,027 were assigned to class 4; and of 41,638 contract muskets, 19,893 were assigned to that same class, being equal to 19.13 per cent. in the former, and 47.77 per cent. in the latter case.

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

ORDNANCE OFFICE, *February 7, 1845.*

[Miscellaneous Letters, vol. 36, p. 163.]

ORDNANCE OFFICE,
Washington, February 11, 1845.

SIR: I have received from the arsenal at Augusta, Ga., the usual monthly reports and statements due from that post for the month of January past, "examined and countersigned" by Capt. J. R. Vinton. Upon this matter I have to inform Captain Vinton through your office that his interference with the ordnance duties of the officer who is responsible to this department for the correctness of the returns required by ordnance regulations is an assumption of authority that cannot be permitted. His company being placed at the arsenal as a guard, he should confine himself to his appropriate functions, and any attempt to wrest from the Ordnance Department the entire control of its own operations must be viewed as a military offense. As well might a captain of a marine guard on shipboard, who happens to be the senior officer, undertake to control the officers and crew and to navigate the ship.

I trust, sir, you will give such orders as may prevent the necessity for pursuing this subject further.

I am, sir, &c.,

GEO. TALCOTT.
Lieutenant-Colonel of Ordnance.

General R. JONES,
Adjutant-General, U. S. Army.

[Letters to W. D., vol. 8, p. 299.]

ORDNANCE OFFICE.
Washington, February 12, 1845.

SIR: I have respectfully to ask your attention to the wants of the Ordnance Department as regards additional officers and enlisted men. and

to request your aid in obtaining such addition to its present organization as the public interests seem to require.

The department as now organized consists of four field officers, ten captains, twelve lieutenants, and two hundred and fifty enlisted men, with six brevet second lieutenants attached and fifteen military storekeepers.

The duties of the department include operations at two national armories, four arsenals of construction, and twenty arsenals and depots for repairs, preservation, and deposit of arms and ordnance stores; also the supervision and inspection of cannon and small arms made at five foundries and nine private armories, and the inspection* and keeping in good order of the whole armament of all the fortifications.

Although all the officers of the department are engaged in their appropriate duties (except one brevet second lieutenant on detached service at the Military Academy), at eight of the arsenals there is but a single officer, while nine arsenals and depots are, from necessity, in charge of military storekeepers.

The organization of the Ordnance Department, as proposed and provided by the 13th section of the act approved 5th July, 1838, included twenty lieutenants; and it is well known that this number is not too great for the duties required at the armories, arsenals, foundries, and depots, and on the inspection service. The supplementary act of the 7th July, 1838, reduced the number to twelve, and including all the brevet lieutenants now attached to the corps, who are amongst the most valuable of its officers and are daily becoming more so by the practical experience in its duties which they are gaining, the number provided by the first proposed organization, and by no means more than enough for the proper performance of the requisite duties, is not made up.

It is believed that the great amount of military property in charge of the department, and the labor required to preserve it in good condition, to which must be added the duty of providing and issuing all that is required by the Regular Army and militia, and for the fortifications of the whole country, would fully justify the addition of *two* captains and *twelve* lieutenants to the corps; but at any rate eight lieutenants should be added, making twenty in all.

An increase of the enlisted men, by the addition of 150 to the present number, is earnestly urged. This may be done without additional expense to the government, as it will save the employment of that number of *hired* men. It will also have the advantage of giving the control of

* REGULATION.

WAR DEPARTMENT, *February 11, 1843.*

The chief of the Ordnance Department will take the necessary measures for repairing and preserving in complete order the armament of the forts, and for this purpose he shall make or cause to be made a careful inspection of all ordnance, carriages, ammunition and ordnance stores in the respective forts in the United States once in each year.

At the inspection of the armament of a fort by an ordnance officer, the officer in command of the post shall cause him to be furnished with an inventory of ordnance and ordnance stores pertaining to the same, and afford the aid of such men as may be necessary for handling and exhibiting for inspection the carriages, cannon, implements, projectiles, ammunition, &c.

The inspecting officer will note in the inventory the condition of the property, whether serviceable or unserviceable, and also such suggestions as he may deem necessary for its better preservation. He will make a report to the Ordnance Office of every inspection, and forward the inventory of the property with his remarks thereon.

J. C. SPENCER.

a description of labor not always readily found when wanted, but indispensable in the proper care and preservation of munitions, and cheaper, as well as better, than the hired labor now devoted to such purposes.

I have attached the sections of a bill, which will meet the case according to the views above set forth.

Respectfully, &c.

Hon. Wm. WILKINS,
Secretary of War.

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Be it enacted, &c., That there shall be added to the Ordnance Department two captains and twelve lieutenants, and that the vacancies hereby created shall be filled by regular promotion, so that there shall be twelve captains, twelve first lieutenants, and twelve second lieutenants of ordnance, who shall receive the same pay, emoluments, and allowances as now are, or may hereafter be, allowed to ordnance officers of the same grades.

SEC. 2. And be it further enacted, That the enlisted men of ordnance shall consist of as many as the public service may require, not exceeding four hundred, and that all officers and enlisted men of ordnance shall be subject to the Rules and Articles of War in like manner with other troops of the United States.

[Letters to W. D., vol. 8, p. 306.]

ORDNANCE OFFICE,
Washington, February 13, 1845.

SIR: In the year 1839 this department proposed the construction of a ballistic pendulum, for the purpose of prosecuting in an accurate manner many experimental inquiries essential to the advancement of the science of gunnery, and to acquiring a knowledge of the principles which should govern in determining the proper proportions of length and weight in the construction of cannon, and the best mode of fabrication of gunpowder for artillery purposes, and introduced in its estimate an item for that object. This measure was approved by Mr. Secretary Poinsett, and the sum asked for was appropriated, but owing to the absence of the greater part of the officers comprising the ordnance board on a visit to Europe, the construction of and experiments with the pendulum were not commenced until the year 1842. This duty was then assigned to Captain Mordecai, who has since that time been engaged therein under the direction of this office.

Having completed the construction of and a course of experiments with the cannon pendulum, to which was subsequently added a musket pendulum for the determination of similar principles in reference to small-arms and powder therefor, Captain Mordecai has now presented his first report, showing the nature of his experiments, so far as they have been carried, and their results. This report exhibits great skill, industry, and scientific knowledge on the part of that officer, and contains a mass of facts highly important to be known generally in the service. I therefore submit the report for your examination, and propose, with your sanction, to cause it to be printed and distributed for general information, the expense of which may be defrayed from a balance of the appropriation for the pendulum yet remaining.

While on this subject, I may remark that there is in possession of this department much other valuable information, the knowledge of which

would be of great advantage to the military service of the country, and which it is proposed to digest and prepare for publication from time to time.

Respectfully, &c.,

Hon. WM. WILKINS,
Secretary of War.

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

[Indorsement.]

Having examined the report of experiments* referred to in the above communication, and believing that the work is of a nature to be highly interesting and useful to the military service, I approve of its publication. The Chief of the Ordnance Department will, therefore, take measures to have the report printed, under the immediate superintendence of Captain Mordecai.

WM. WILKINS,
Secretary of War.

WAR DEPARTMENT, *February 13, 1845.*

[74 R., 1845.]

WASHINGTON, *February 24, 1845.*

SIR: The second section of the act approved 23d August, 1842, limits the pay of inspectors at the national armories to \$800 per annum, and cuts off all other emoluments of any kind except quarters.

The public quarters at Springfield Armory are not sufficient for the number of inspectors necessarily employed there, in consequence of which a part of them only are provided for, thus producing inequality in their compensation. It is very desirable that provision should be made for supplying all the inspectors with quarters, which can be done most conveniently for them and most economically for the government by hiring. I therefore strongly recommend that this course be adopted, which can be done at an expense not exceeding one hundred dollars per annum for each inspector.

I am, sir, respectfully, your obedient servant,

JAS. W. RIPLEY.

Col. GEO. TALCOTT,
Ordnance Department, Washington.

[Indorsement.]

ORDNANCE OFFICE, *February 24, 1845.*

It is respectfully recommended that quarters be hired for the inspectors, as within suggested.

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

[Indorsement.]

It is required that where the buildings of the government upon the public grounds will afford quarters for the inspectors they must be occupied, and it is only allowed to rent quarters for that portion of the inspectors that cannot be so accommodated. The quarters must be actually rented and occupied, and the rent must not exceed \$60 annually.

WM. WILKINS.

* Report of experiments on gunpowder, made at Washington Arsenal in 1843 and 1844. 8vo., p. 328. Washington, 1845.

[Circular.]

WAR DEPARTMENT,
 ADJUTANT-GENERAL'S OFFICE,
Washington, March 1, 1845.

SIR: The regulation of June 10, 1844, relative to "leaves of absence," having been misapprehended by some of the heads of bureaus, I am instructed by Secretary of War to inform you that the provisions of paragraph No. 140 were meant to apply to the officers of your corps in the same manner as to the "commanding officer" of any garrisoned post or station.

With respect to the mode of application for leaves exceeding "*seven days*" in cases of officers belonging to the Corps of Engineers, Topographical Engineers, and Ordnance Department, the practice of the service has been to make such applications direct to the Secretary of War through the respective colonels, and, when approved by the Secretary, the application has been sent down to the Adjutant-General's Office and the leave announced in orders, as in cases of other officers of the Army. In this way, although the authority be derived from the Secretary of War, yet the spirit of the regulation found in paragraphs Nos. 143, 144, and 145 is preserved, as well as the usage of the service.

I am, sir, very respectfully, your obedient servant,

R. JONES, *Adjutant-General.*

To the COLONEL OF ORDNANCE,
Washington.

NOTE.—The *authority* for the granting the leave of absence, if not always expressed, would, of course, be understood as emanating from the Secretary of War.

[Miscellaneous Letters, vol. 36, p. 189.]

ORDNANCE OFFICE,
Washington, March 15, 1845.

SIR: I have to acknowledge the reference to this office, by the Secretary of War, of your letter to the President, recommending Mr. John Stineman for the office of military storekeeper at Liberty, Mo., and in reply have to state that no vacancy exists at this time. The law of 1842 limiting the number of military storekeepers also changed the tenure of the office. These officers being commissioned, after approval by the Senate, now hold their places in the same manner as Army officers, and are subject to be ordered from post to post.

Your letter will be placed on file for future reference in the event of a vacancy.

I am, sir, &c.,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Hon. JOHN SCOTT,
Alexandria, Pa.

[Letters to Ordnance Officers, vol. 6, p. 418.]

ORDNANCE OFFICE,
Washington, March 24, 1845.

SIR: I have to acknowledge the receipt of your letter of the 20th instant, on the subject of the muster of your horses, agreeably to the mode

pointed out in Eastern Division Orders No. 5 of this year.* The operation of these orders, so far as your station is concerned, certainly bears hard in cases where you cannot avail yourself of the services of an inspector or paymaster visiting your post to have the muster made there. But it is thought that the proper remedy will be found in an application to commanding general of the Eastern Division, stating the operations of the orders and their hardship in your case, and requesting a modification so far as it is concerned. You might, at the same time, suggest a mode of making the muster which would dispense with the trouble and expense of sending horses so far, if any should occur to you, which will not conflict with the regulation of the War Department of the 26th December, 1844.

Respectfully, &c.,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Capt. J. A. J. BRADFORD,
North Carolina Arsenal.

[Miscellaneous Letters, vol. 36, p. 211.]

ORDNANCE OFFICE,
Washington, March 29, 1845.

SIR: In reply to your letter of yesterday, asking to be informed of the proof and inspection of iron ordnance most recently established by the Ordnance Department of the Army, I have to state that our principal reliance for the quality of iron guns is in a strict supervision of the material and of the entire process of fabrication.

For this purpose a superintending officer is kept on duty at a foundry during the manufacture of iron cannon, under whose immediate supervision all the different parts of the inspection during fabrication are conducted. Each founder, before proceeding to make cannon, is required to cast a trial gun (9 pounder) of given dimensions. This gun when finished is proved with the following series of charges:

[38 A, 1845.]

[Orders No. 5.—Extract.]

HEADQUARTERS, EASTERN DIVISION,
Troy, N. Y., February 10, 1845.

* * * * *

The horses of officers at the headquarters of the Eastern Division will be mustered by the Assistant Adjutant-General, and those in his service by the aid-de-camp of the commanding-general; in *New York City*, by the commissary of subsistence on duty there, and those in his service by the senior officer of the quartermaster's department in *New York City*; in *Philadelphia*, by the assistant quartermaster there, and those in his service by the assistant quartermaster-general on that station; in *Brownsville*, by the assistant quartermaster at Madison Barracks; in *Boston*, by the assistant quartermaster, and those in his service by the paymaster there; in *Norfolk, Va.*, by the assistant quartermaster at Fort Monroe; in *Charleston*, by the assistant quartermaster at Fort Moultrie; at Springfield and Harper's Ferry Armories, by the storekeepers; at *Kennebeck* and *North Carolina* Arsenals, by the inspector-general or paymaster who visits those stations, and should there be no visits from those officers, then the horses may be sent to the nearest military posts, whose commanders are hereby authorized to muster them.

* * * * *

By command of Brigadier-General Wool.

ED. SCHRIVER,
Assistant Adjutant-General.

First series, 20 rounds, 3 pounds of powder, 1 ball.

Second series, 20 rounds, $4\frac{1}{2}$ pounds of powder, 2 balls.

Third series, 10 rounds, $4\frac{1}{2}$ pounds of powder, 3 balls.

Fourth series, 5 rounds, 9 pounds of powder, 6 balls.

Fifth series, until the gun is broken. 18 pounds of powder, 13 balls.

The balls are cast in clusters and no wads used.

Should the trial gun with this proof give satisfactory results the founder is required to provide a sufficient quantity of iron of the same quality to make guns to the amount of his contract.

The superintending officer carefully examines this iron, noting the appearance of the face of the pigs, breaking some of them to ascertain the texture and quality of the metal, and noticing the indications exhibited by the fracture and the degree of force required to produce it, also occasionally ascertaining the specific gravity. Some bars are cast from the iron to be used in making the guns, and their transverse strength ascertained, noting the weight required to give each a set or permanent deflection and its breaking weight, and the tensile strength of a piece cut from the muzzle (or force required to tear it asunder) is ascertained by a machine made for the purpose. The superintending officer observes and notes the charging of the furnace, the kind and quality of fuel used, the time of fusion and the comparative degree of heat of the iron, time of running it into the molds, the time allowed for cooling, and every part of the process of casting and finishing. A sample bar is cast with each gun, and a specimen of the metal is taken from the muzzle after cutting off the sinking head. The sample bar is broken and its fraction examined and compared with that of the iron from which it was cast. The specimen from the muzzle is also examined. After the guns have been cast and finished under this supervision they are measured, and undergo the following proof:

Iron guns, first and second rounds, a charge of powder one-half the weight of the shot, a cylinder equal in weight to 2 shot, and 2 wads.

Third round, a charge of powder one-third the weight of the shot, 1 shot, and 2 wads.

Should any of the guns proved at one time fail to sustain the above proof, the remainder are to be again fired twice with a charge of powder equal to one-half of the weight of the shot, one shot and two wads; and if, in either or both of these trials, one-fourth of the whole number should fail, the whole are to be rejected.

Sea-coast howitzers are fired twice with the following charges: 10-inch howitzers, 15 pounds of powder, one 10-inch shot and 1 wad over the shot; 8-inch howitzers, 12 pounds of powder, one 8 inch shot and 1 wad over the shot.

Should any howitzer fail to sustain the above proof, the remainder of those offered at the same time are to be again fired twice with the same charge; and if, in either or both of these trials one-fourth of the whole number should fail, the whole are to be rejected.

For the new 8 and 10 inch columbiads a different and higher proof charge is used.

The iron used in the manufacture of guns must be made with charcoal and cold blast; any iron made wholly or in part with mineral coal or coke, or in the making of which heated air has been used, is entirely excluded.

Respectfully, &c.,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Com. C. MORRIS, *Washington.*

[Letter to W. D., No. 170, 1845.]

ORDNANCE OFFICE,
Washington, March 31, 1845.

SIR: I have the honor to submit an abstract of the proceedings of the ordnance board recently convened at this office, and respectfully suggest that the several recommendations of the board be sanctioned.

I am, sir, very respectfully, your obedient servant,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Hon. W. L. MARCY,
Secretary of War.

Abstract of the proceedings of the ordnance board which met at the Ordnance Office on the 20th of February and adjourned March 12, 1845.

1st. On the alteration of muskets from flint-lock to percussion. Plans of Dr. Maynard and others:

After considering the various plans of alteration adopted in Europe the board are of opinion that the Belgian plan of inserting the cone directly into the upper part of the barrel and altering the lock to correspond (as in the altered musket in the office), and the French modification of this plan, which consists in screwing the cone into a steel bouche or seat first inserted in the barrel, offer advantages in point of simplicity, facility, economy, and efficiency which recommend the adoption of one or the other. The choice between them may be determined by trial at the armories to ascertain their relative advantages in point of facility and accuracy in making the alterations. The Belgian plan has been tested at the Washington Arsenal by firing 1,000 rounds with the musket above alluded to, and 1,000 with another musket of the same kind. The results of both the trials were perfectly satisfactory; so much so as to induce the board to give the preference at present to this mode of alteration, which will be attended with less cost than the French plan.

With regard to substituting other primers and new arrangements of the lock for the percussion-cap now in use, the board, considering that the efficiency and convenience of the cap having been established by long experience in sporting guns, so as to cause its general adoption for military service, the subject of a change in the kind of primer should be approached with great caution, and they are therefore unwilling to make any suggestions with regard to the ingenious contrivance of Dr. Maynard for this purpose, except that a full and sufficient trial should be given to his plan, if the report of the board of officers appointed to examine it should be favorable.

2d. Service of percussion arms.

The board recommend the following as the charges of percussion arms:

I. For the musket, 110 grains; for the rifle, 75 grains; for the pistol, 30 grains.

II. The percussion-caps to be carried in a leather pouch attached to the waist-belt, of the pattern submitted by Major Baker.

III. The caps to be put up in the bundles of cartridges; 12 caps to each bundle of 10 cartridges.

IV. The screw-driver for percussion arms to be like the pattern before the board, with the square 0.26-inch when hardened. The edges of the screw-driver to be rounded.

V. A pick to be made of steel wire annealed of 0.048 inch diameter, with a ring handle, to be carried in a sheath or loop on the inside of the cap pouch. The former pricker and brush to be omitted.

VI. For exercise when the caps are not used a burnt cap to be placed upon the cone.

VII. The windage of the musket ball should be reduced to 0.04 inch by increasing the diameter of the ball to 0.65, and the gauges of reception of balls be 0.002-inch above and below the diameter of the ball.

VIII. The cone for percussion arms to be of the following dimensions:

	In.
Whole length of the nipple	0.75
Length of the conical part	0.27
Length of the screw part	0.28
Length of the square part	0.13
Length of the round part	0.07
Diameter of the cone at top	0.22
Diameter of the cone at base	0.245
Diameter of the vent or bore of the nipple at the top	0.1
Diameter of the vent or bore of the nipple at the throat	0.05
Diameter of the vent or bore of the nipple at the bottom	0.17

IX. The comb of the hammer of the musket to be of the same width as the hammer at its face.

3d. Modifications to be made to the rifle:

I. The rear end of the bolster of the *bridle* of the rifle lock to be lengthened 0.03 inch to prevent the hook of the mainspring falling off the hook of the tumbler.

II. The dovetail of the guide of the rifle not to be tapered.

III. The head of the tang-screw of the rifle to be carried forward 0.05 inch, and the guard plate drilled and tapped to correspond to prevent the barrel being pushed forward when screwed down.

4th. Bores of small arms, &c.:

It is recommended that trials be made at the armories to ascertain if the allowance of variation in the bores of small arms can be reduced, and to what extent: also if the comb of the hammer for muskets can be lengthened so as to be carried more conveniently on the arm at a support.

The board further recommend that experiments be made to improve the sighting of the muskets by applying a guide to the tang, and that the colonel of Ordnance be requested to have trials made for the purposes above recommended, and the results reported to a future meeting of the board.

5th. 8 and 10 inch columbiads:

It was agreed by the board that the heavy 8 and 10 inch howitzers should be known and designated as 8 and 10 inch columbiads.

6th. Carriages for 8 and 10 inch columbiads:

The barbette carriages constructed at Boston for experimenting with these guns are sufficiently strong, and the adoption of their general arrangement and dimensions, as given in the drawings, is recommended. To remedy an inconvenience in maneuvering, the board recommend the addition to the rear transom of an eccentric roller as upon the 42-pounder casemate carriage, and to have the truck handspike holes in the truck wheels, near the outer edge of the wheels, sloping inward from the surface at 20° inclination and 3½ inches deep, so that the men can work at the handspikes while standing upon the ground or platform. The bills of iron and timber prepared by the board are recommended for adoption. The upright and brace diagonal bolts are fixed at 1½ inch diameter.

and the other connecting bolts at 1.25, except the hurter bolts, which are 1 inch and the elevating bed bolts and bolts of axle caps of traverse wheels. For these carriages it is deemed important to have wooden pin-tle crosses and traverse circles.

A casemate carriage for the 8-inch columbiad can be constructed of timber now used for the 42-pounder carriages. The axis of the trunnion holes to be 1 inch farther to the rear than in the 42-pounder carriage, to give greater stability to the carriage, and the same axis to be 0.2 inch higher than the 42-pounder. The cheeks to be parallel to each other.

7th. Cannon for flank defenses :

The plan of the 24-pounder howitzer carriage submitted to the board is recommended with the following modifications, viz: The rear transom to be made of cast-iron and to weigh about 228 pounds, which weight is required to reduce the recoil. In this transom a geared screw to be inserted for elevating the howitzer, and about six inches of the rear of the cheeks, as shown in the drawing, be cut off.

The iron howitzer heretofore adopted will answer with the carriage thus modified.

8th. Geared screws for carriages :

It is recommended that for all casemate carriages the geared screws be adopted, and that trials be made with one attached to the rear transom, as upon a model transom submitted by Major Baker, and as mentioned in a report of trials made to the Ordnance Department; and if this plan of attaching the screw stands a sufficient trial that it be adopted. For cast-iron carriages, these screws are to be attached by a cast-iron bed similar to those tested upon the wooden carriage at Fort Monroe.

9th. Pressed balls :

The board recommend that it is desirable to make pressed balls, and that a suitable press for that purpose be constructed at one of the arsenals.

10th. Armament of forts :

On the subject of the modification of the armament of forts—old and new—as arranged by a military board in 1839 (General Fenwick, president), the board report that the introduction of the 10 and 8 inch Columbiads will, no doubt, cause a modification in the armament of the forts.

In their opinion the 10-inch may, in many cases, advantageously replace the 13-inch mortar, and the 8-inch the 42-pounder gun; and it is important that the probable change should be kept in view, but until the experiments now in progress to establish the details of the guns, carriages, shells, fuses, &c., be completed, the board are not prepared to recommend any changes.

11th. Thickness of metal at breech of cannon increased :

It was determined to increase the quantity of metal in the 32-pounder gun at the breech, so as to make the thickness of metal at the seat of the balls $1\frac{1}{2}$ calibers. This to be done by increasing the diameter of the breech 1 inch, as shown in the accompanying drawing; it was also determined to increase the quantity of metal around the seat of the charge in the 24, 18, and 12 pounder siege, garrison, and sea-coast guns, by making a part near the breech cylindrical as in the 32-pounder; dimensions shown in the accompanying drawings.

12th. Miscellaneous :

It is recommended that curb bits of the pattern made at Watervliet Arsenal, tinned, be substituted for the present pattern of curb and snaffle bits for harness; and the "D" handspike rings upon field-gun car-

riages be reduced to $3\frac{1}{4}$ (three and a quarter) inches interior dimensions each way.

Respectfully submitted to the Secretary of War for his sanction.
For the board:

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

ORDNANCE OFFICE,
14th March, 1845.

Approved:

W. L. MARCY.

[DISMISSAL OF OFFICERS.]

Brief on the power to dismiss, without trial and sentence to that effect, a military storekeeper or other commissioned officer of the Army.

1. Letter of Mr. Miller, of Springfield, Massachusetts, April 18, 1845, claiming for the President the right to dismiss the storekeeper there;
2. Letter dismissing Mr. Charles Little, storekeeper, August 28, 1835; and

3. Opinion of Mr. Attorney-General Butler, February 20, 1837, on which Mr. Little was restored to office.

These papers have been referred to me by the Secretary of War. They present a grave question, one that has been but little discussed, and only, as far as I know, between President Adams and myself in 1828. On that occasion the President practically admitted his want of power to dismiss without a judicial sentence to that effect.

I am aware that many Presidents have exercised the power in question. But a strong negative is found in the fact that every officer so dismissed from the Army has, on a demand to that effect, been restored and allowed the benefit of a trial by his peers. The dismissed officers who neglected to make such demand, and who, therefore, were never restored, probably looked upon their arbitrary dismissal as an act of mercy to themselves respectively, as covering up the details of guilt and shame which, otherwise, would have gone on judicial record and been made perpetual.

I do not mean to discuss the question of "removals," or the power to dismiss from the public service in general. That has been elaborately argued and reviewed at different periods, and, perhaps, yet remains an open question. I shall confine this brief to the tenure of the commissioned officers of the Army, which rests on special grounds.

An army in a republic, it will be admitted, is a delicate—nay, a most dangerous—machine, unless held in the strictest discipline, *i. e.* in the strictest obedience to the constitution and the laws. It is equally essential to the good of a republic, that its army should also not be a *slavish machine*; that all arbitrary and capricious action over it should be excluded; that it be at all times under the government of fixed and constitutional authority. *Misera est servitus ubi jus est aut vagum aut incognitum.* "The government (with us, the legislature) ought precisely to *determine* the functions, duties, and rights of all military men, soldiers, officers, chiefs of corps, generals."—*Vattel.*

"The Congress shall have power to make rules for the government and regulation of the land and naval forces." This power was taken up and, for the time being, exhausted, by the act (commonly called the

Rules and Articles of War*) of April 16, 1806. Cross's Mil. Laws, pp. 107, 123.

It is of the very essence of rules for the government of the public forces that they should define and prohibit offenses, prescribe penalties, and, in addition, designate the tribunal which is to ascertain such offenses and apply the prescribed penalties. Now all this is clearly done in the act of 1806. Congress has therein carefully enumerated and defined every possible act which it chose to consider an offense in the military State or land forces, and, to exclude all arbitrary action, has placed in juxtaposition with each and every offense so created, in the same article, the tribunal (a court-martial, and not the President) to judge the alleged offense and to apply the prescribed punishment. How can their connection, in a constitutional act, and, therefore, part of "the supreme law of the land," be legally dislocated (except by another such act) and the President seize upon a jurisdiction so carefully lodged in other hands?

A remarkable legislative construction supporting, nay, establishing, my views of the power in question is found in the "act concerning the disbursement of public money," January 31, 1823, sec. 3, Cross, p. 216. Here an offense previously created and made punishable only by a court, under the 39th Article of War (Cross, p. 114), is by special dislocation to "be promptly reported to the President of the United States and (the offender) dismissed from the public service." (This power has, in the case of Quartermaster Captain Davis, been exercised within a week. The dismissal could only have been summarily made by direction of law.)

General courts-martial must, under the 64th Article of War (Cross, p. 117), consist of from five to thirteen members, each taking an oath (69th Article) to "try and determine" according to the rules and the articles, "and if any doubt shall arise, not explained by the said articles, according to your conscience, the best of your understanding, and the custom of war in like cases"—or what may be termed the common law of the army.

This common law is recognized by Mr. Attorney-General Wirt, April 5, 1824; and again, February 20, 1828, he distrusts his own judgment in reference to "the existing usage and practice of the army, known only to military men." *Opinions of Attorneys-General*, pp. 489, 596.

No sentence of a court-martial, in time of peace, extending to the loss of life or the dismissal of a commissioned officer, or which shall either "in time of peace or war, respect a general officer, be carried into execution until after the whole proceedings (of the court) shall have been laid before the President of the United States for his confirmation or disapproval or orders in the case." 65th Art., Cross, p. 117.

There is extreme care taken by Congress of the commission of an officer, often more dear to him than life, even after it has been submitted to the judgment of his peers.

In respect to the Army and Navy, the President is only the "first General and Admiral of the Confederacy." (*Federalist*, No. 69, by General Hamilton, written in 1788, pending the question, Shall the Constitution be adopted? in order to dispel the fear that the President would become, like George III. the fountain of all honor and power over the Army and Navy.) Indeed it was only as the "first general" that the President

* Established by the old Congress, June 30, 1775, November 7, 1775, September 20, 1776, &c., which were recognized under the constitution by the act, September 29, 1789. Cross, p. 41.

ever appointed a general court-martial down to 1830; for the 65th Art. of War only gives that power in terms to any general commanding an army, or colonel commanding a separate department."

In a certain class of cases, provided for in the new and anomalous act, May 29, 1830, sec. 1 (*Cross*, p. 225), the power to appoint courts is first given to the President in terms.

What power has the "first general" or any officer over the Army, except such as is clearly derived from the Constitution or laws?

In all cases (except those arising under the act of 1823, respecting the settlement of accounts) it has been shown that trial by a court is as much a part of the rules and articles of war as the offenses therein severally created, or the punishment to be decreed.

Suppose a court sentence an officer to a year's suspension, would any President think of substituting the higher power of dismissal?

But it may be contended that if the President cannot summarily dismiss for any statutory offense, other than that created by the act of 1823 (non-settlement of accounts), he may, nevertheless, exercise that power without the assignment of any cause.

Besides the reply that no such case has ever occurred in the Army, that attribution of prerogative to the President would give him a power over an unaccused and innocent officer which he could not have exercised over the greatest and most apparent guilt—the cowardice or treason of a Hull! The surrenderer of Detroit was tried by a general court-martial, and was only dismissed in mitigation of the sentence which doomed him to die!

The fifth amendment of the Constitution only excepts from a preliminary presentment by grand juries cases arising in the land and naval forces, and does not take away from their officers the benefit of a trial in chief by their respective peers.

Mr. Attorney-General Butler's opinion before me admits that military storekeepers are duly "appointed by the President and Senate, *commissioned* and sworn": and being further placed under the rules and articles of war, it follows that they are as much officers of the Army as our generals. (See *Army Register*, p. 10.)

But Mr. Attorney-General Butler, speaking of Storekeeper Little, ignorantly and complacently adds: "He was liable, like all the officers to be dismissed by the President." Mr. Butler had evidently never investigated the question of power, or he threw out this *obiter dictum*, this sentence of universal dismissal, merely to cover up the former blunder of his chief, taking care to atone for that blunder by deciding that the power, in point of fact, had not been exercised, and, therefore, that poor Mr. Little was still in service.

I have omitted to state that the power in question has been claimed for the President, but never exercised, under two other heads:

1. Under the 11th Article of War (*Cross*, p. 109), every individual who enters the Army by enlistment or by commission is held to remain in it, under the penalty of being considered a deserter, until regularly discharged. Non-commissioned officers, musicians, and privates, &c. (enlisted men), receive a formal paper called a discharge, signed as the article directs, at the end of the engagement of each; or, if by sentence of a court, the order in the case is such discharge. Commissioned officers are "discharged" in three ways: 1. Upon tender and acceptance of commissions, called resignations. 2. Partial reductions or disbandments of the Army, when all surplus officers go out, and are declared by the President, in orders, to be honorably discharged. 3. Sentences of general courts-martial, when the term honorable is, of course, omitted. In all

three cases the officers are put out by order of the President, giving the discharges.

But it may be said, if, in each class of the cases—the last, as in the first and second—the President gives the order of discharge, why does the article specify by sentence of a general court-martial? Because in time of war (see the 65th Article) a general officer in command of a particular army, &c., has also the power to discharge a commissioned officer, sentenced to be dismissed by such court, and but for the words in the 11th—“by sentence of a general court-martial”—this article would not have been in harmony with the 65th.

The 11th Article, therefore, gives no power to the President to make arbitrary discharges of officers: in other words, dismissions.

The words found in every officer's parchment: “This commission to continue in force during the pleasure of the President of the United States for the time being.”

This *duranto bene placito* would seem to conclude the question, and it certainly would be conclusive if those words were in any manner founded on or derived from specific legislation.

June 17, 1775, a committee appointed for the purpose submitted to Congress the draft of a commission for General Washington, which was adopted. (Journals, vol. 1., p. 85.)

This draft in all its formal parts was closely copied from British commissions (there were at least twenty members who had held such), substituting in the closing words, “this commission to continue in force until revoked by this or a future Congress.”

And Congress then, and down to the adoption of the present Constitution, it will be remembered, exercised over the Federal forces all the powers of the British King and parliament united.

That draft was substantially followed in all Army commissions given by the old Congress.

Since the adoption of the Constitution of the United States there has been absolutely not a syllable of legislation on the form of Army commissions.

The old form has been continued, substituting “the President of the United States,” for the *King* (in the sentence quoted and originally borrowed from British commissions). This probably was the pen-work of some clerk, or, at most, the hasty direction of the Secretary of War, without reflecting that the chief magistrate in a republic is not the fountain of all honor and power.

All which is respectfully submitted to the Secretary of War.

WINFIELD SCOTT.

APRIL 23, 1845.

[Inclosure.]

SPRINGFIELD, MASS.,

April 15, 1845.

SIR: E. D. Beach, esq., has in his possession a large number of letters from gentlemen of the first respectability, recommending him to the President for the office of paymaster at the United States armory, in Springfield. But it seems that doubts have arisen, as to the power of the President to remove the present incumbent, and I have concluded (acting in behalf of Mr. B. and his friends) not to transmit the letters referred to till the question as to the power of removal is settled.

As I have given some attention to this question, I wish, very respectfully, to present my views upon the subject without intending to go fully into the argument.

The power of removing the paymasters at the armories has been repeatedly exercised without being questioned, and was so as recently as 1841, when Charles Howard was removed, and Mr. Ingersoll appointed in his stead.

Has the tenure of this office been changed by the act of 1842, chap. 186?

Is the officer by the provisions of that act placed beyond the reach of the Executive?

The second section of the act abolishes the office of superintendent of the armories and transfers the duties to others. But in regard to all other officers named in the section it merely changes and fixes the compensation, giving annual salaries instead of rations and monthly compensation. The language of the statute clearly does not change the tenure of these offices, nor is there anything from which it can be implied that such was the intention of Congress.

It is understood that the friends of Mr. Ingersoll, in the Ordnance Department, rely upon the opinion of Attorney-General Butler, in the case of Charles Little. On a careful examination of the letter of the then Secretary of War to the President on that subject, and also the opinion of Mr. Butler, it is confidently submitted that that opinion, instead of doubting or denying, does, in fact, confirm the power of the President to "dismiss or remove" the officers referred to. In the case of Mr. Little, "he was liable" (says the Attorney-General) "to be dismissed or removed by the President." And the reasons why the proceedings in that case were held to be "irregular and inoperative" was because "dismissal or removal was not intended." Mr. Little was not removed, but his "appointment was discontinued," or his "services dispensed with," after a certain period. Had he been removed, and another appointed in his stead, it would seem that no question could have been raised as to the legality of the act. But although the President had the power to "dismiss or remove," he could not legally order a discontinuance of the duties of the office.

If the friends of Mr. Beach believed that there was ever a reasonable doubt as to the legality of a removal in this case, they would not press it upon the consideration of the Executive or your department, but under the circumstances they respectfully request that the subject may not be passed over without full investigation.

Very respectfully, your most obedient servant,

JOHN MILLS.

Hon. W. L. MARCY,
Secretary of War.

[Inclosure.]

DEPARTMENT OF WAR,
August 28, 1835.

SIR: Charles Little, esq., was appointed military storekeeper for the clothing department some time since, to be stationed at New York, under the expectation that contracts would be taken for supplying the Army in that city, which would require his care and attention. The experiment has, however, been made, and has failed, and there does not

seem to be any necessity for the services of such an officer. I had the honor, some time since, to converse with you upon this matter, and I had fixed upon the 1st of July last as the proper time for dispensing with Mr. Little's services. The matter, however, passed by in consequence of my absence from the department without the necessary steps being perfected. I have now the honor to propose that Mr. Little's appointment be discontinued after the 31st instant.

Very respectfully, I have the honor to be, your most obedient servant,
LEWIS CASS.

THE PRESIDENT OF THE UNITED STATES.

Approved, August 28, 1835.

ANDREW JACKSON.

On a careful review of the within case, and after consultation with the President, we are satisfied that the *discontinuance* of Mr. Little's office was irregular and inoperative. The within action was probably had on the supposition that he was one of the storekeepers who are appointed by the President, from time to time, as the service requires, and whose offices may be discontinued at pleasure. It appears, however, on examination, that he had been duly appointed by the President and Senate, commissioned and sworn as one of the *two military storekeepers* required by sec. 9 of the act of March 2, 1821. He was liable, like all other officers, to be dismissed or removed by the President; but the within action is not, and was not intended to be, a *dismissal* or *removal*. Consequently, Mr. Little is yet in commission; and until the time when he entered on civil duties, and received pay therefor, is entitled to the pay and emoluments of military storekeepers.

B. F. BUTLER.

FEBRUARY 25, 1837.

[Inclosure.]

SPRINGFIELD, April 15, 1845.

MY DEAR SIR: I thank you most heartily for entering so warmly into my wishes. I never doubted, indeed, your readiness to do for me whatever lay properly within your province. Had I, this renewed proof of your friendship would remove it.

I have carefully examined the papers sent me, and the laws referred to in them. Not a doubt rests on my mind as to the matter being entirely within the control of the President.

The opinion of Attorney-General Butler, so far from sustaining the position that this *officer* is beyond the reach of the President, settles conclusively that he has the power to remove.

In the case of Little, there was an attempt "to *discontinue* the office." This, says Mr. Butler, was "*irregular and inoperative*." "He," Little, "was liable, like all other officers, to be *dismissed* or *removed* by the President," continues Mr. Butler, "but," he adds "the within action (the attempted *discontinuance*) is not, and was not intended to be, a *dismissal* or *removal*." Consequently Little, being still in commission, was entitled to pay until, &c. This opinion of the Attorney-General settles two points:

First. That the attempted *discontinuance* of an *office* does not operate a removal of the *officer* holding it, when appointed and commissioned as was Little.

Second. That a military storekeeper, appointed by the President and Senate, commissioned and sworn as Little was (and this is Ingersoll's case precisely, if I understand it), *is liable*, like all other officers, to be *removed* or *dismissed* at the pleasure of the President.

It seems to me that this second position is irresistible from the opinion of Mr. Butler, as well as from the law.

I have chosen, however, to obtain a legal opinion entitled to very much more weight than mine, and have consequently submitted the papers to Mr. Mills, who will, in a very few days, inclose to Governor Marcy his written opinion.

Mr. Ingersoll, I hear, entertaining the impression that he is beyond the reach of the President, exultingly defies this administration to remove him. This, however, is of no consequence either way. Ingersoll was appointed in May, 1841. In March, 1843, he was again appointed by the President and Senate, commissioned and sworn. This last I look upon as a mere device of certain members of the Ordnance Department, designed to bring the *office* under their control, at the same time calculating that the officer would be shielded by the opinion of Mr. Butler in Little's case.

I have letters from a large number of the leading members of the Democratic party in this county and district asking my appointment. I could not desire stronger recommendations or more favorable expressions in my favor, but I think it advisable to retain them till the question of the power of the President to remove is settled. When settled, and if favorably to me, I will, with your permission, inclose all my letters to you for Governor Marcy.

Believe me ever and truly yours,

E. D. B.

Hon. GEO. BANCROFT,
Secretary of the Navy.

[Inclosure.]

IN SENATE OF THE UNITED STATES,
March 3, 1843.

Resolved, That the Senate advise and consent to the following promotions and appointments, agreeably to the nominations, respectively, viz:

PROMOTIONS.

Sixth Regiment of Infantry.—Brevet Second Lieutenant Rudolph F. Ernest to be second lieutenant, 9th February, 1843, vice Emory, resigned.

Seventh Regiment of Infantry.—Second Lieutenant Nevil Hopson to be first lieutenant, 31st December, 1842, vice Arden, resigned.

Brevet Second Lieutenant Henry C. Story to be second lieutenant, 31st December, 1842, vice Hopson, promoted.

APPOINTMENTS.

Military storekeepers attached to the Ordnance Department, authorized by the act of August 23, 1842—

M. C. Buck, to date from 25th April, 1831.

Sanders Lansing, jr., to date from 19th July, 1834.

Richard Parker, to date from 26th December, 1838.

Edward Ingersoll, to date from 24th May, 1841.

R. B. Butler, to date from 5th May, 1842.

Silas Halsey, to date from 24th February, 1837.

James Baker, to date from 2d March, 1837.

Daniel Ragan, to date from 11th August, 1837.

David Butler, to date from 1st September, 1837.

J. A. Webber, to date from 12th October, 1837.
 J. S. Abeel, to date from 6th January, 1838.
 J. R. Hanham, to date from 23d July, 1838.
 W. R. Shoemaker, to date from 3d August, 1841.
 Samuel I. Carr, to date from 7th February, 1842.
 J. M. Galt, to date from 28th December, 1842.

Attest:

ASBURY DICKENS,
Secretary.

NOTE.—Mr. Secretary Spencer decided, upon the act of 1842, that military storekeepers were officers of the Army, whose appointments were not otherwise specially provided for, and, therefore, must by the Constitution be submitted to the Senate. They were accordingly nominated to the Senate and confirmed 3d March, 1843.

The foregoing is a copy of the certified roll from the Senate on record in Adjutant-General's Office.

[Inclosure.]

Notes by the Colonel of Ordnance on the subject of military storekeepers.

The number is limited to ten after 1st October next. This small number will be necessarily required at the several ordnance stations where there are no ordnance officers. Those stations at this time are as follows, viz:

Kennebec Arsenal, Augusta, Maine.

Watertown Arsenal, Massachusetts.

Champlain Arsenal, Vermont.

Rome Arsenal, New York.

Detroit Arsenal, Michigan.

Missouri Depot, Missouri.

Rock Island Depot, Iowa.

Little Rock Arsenal, Arkansas.

Appalachicola Arsenal, Florida.

Saint Augustine Depot, Florida.

Pikesville Arsenal, Maryland.

An officer can be sent to Kennebec or Watertown Arsenal, leaving the other ten stations for the ten military storekeepers.

The paymasters and storekeepers at the armories now give bond in the sum of \$50,000, with approved sureties. Those at the three arsenals of construction give bond in the sum of \$15,000. Neither of these officers are bonded beyond the amount of their quarterly disbursements; so that if adequate security is intended to be had their bonds should be increased to the amount of a half year's disbursement of cash, to say nothing about the great amount of public property in their charge.

In selecting the ten storekeepers to remain, those who are efficient and have claims for long service should not be overlooked. * * *

[30½ W. D., 1845.]

WASHINGTON CITY, April 11, 1845.

SIR: In executing the laws there is no duty which appears to me more imperative than to take care that officers who receive the public money shall promptly and fully perform the duties for which the law appropriates their respective salaries. Justice to the public, and a proper regard for the clearly expressed will of Congress, require that this shall be done. Those who come to the seat of government on public business should not be unnecessarily delayed by the negligence or inattention of heads of bureaus or clerks connected with the executive departments.

I therefore invite your attention to the thirteenth section of the act of Congress approved on the 26th August, 1842, entitled "An act legalizing and making appropriations for such necessary objects as have been usually included in the general appropriation bills without authority of law, and to fix and provide for certain incidental expenses of the departments and offices of government, and for other purposes;" and to the 12th section of the "Act to reorganize the General Land Office," approved on the 4th July, 1836. I desire that you will cause the monthly reports required by the act of 1842 to be regularly made, and that you will transmit them to me.

The law contemplates that the distribution of labor amongst the clerks shall bear a fair proportion to their compensation, and it is unjust that the meritorious and faithful should have to perform the duties of such as may be found to be negligent, idle, or incompetent. To prevent this injustice it is essential that each clerk shall attend regularly in his office and discharge his own appropriate duties. It is desired that each head of a bureau shall cause to be kept a daily statement showing the absence of each clerk from his duty during office hours, the causes of such absence, as far as he may be able to ascertain them, and that this statement accompany the monthly reports. I also desire that you will accompany the monthly reports with a statement of any complaint which may be made to you of any clerk in your office who may have contracted debts since his appointment and does not pay them agreeably to his contract. Disclaiming any right to interfere with the private affairs of officers of government, I am yet unwilling that they shall be embarrassed in the performance of their public duties by the just importunities of disappointed creditors who trusted them on the faith of their compensation from the Treasury.

Believing that the duties required of the officers and clerks employed in the several executive departments are by no means unreasonable, and impressed with the importance of a prompt and efficient dispatch of the public business, I desire that you will take measures for the due execution of the laws to which I have called your attention.

Respectfully, yours,

JAMES K. POLK.

To the Hon. WILLIAM L. MARCY,
Secretary of War.

[Inclosure.]

ORDNANCE OFFICE,
April 16, 1845.

In relation to the instructions received from the President of the United States, through the Secretary of War, setting forth the laws governing the heads of bureaus and clerks in the departments, I deem it proper to state for the information of the gentlemen connected with this office that it is necessary to keep the office open for business from 8 o'clock a. m. to 6 o'clock p. m. That at least one clerk will be ready to meet any calls out of the usual office hours, and in the event of his inability to adjust such matters as may come up he will call on the chief of the bureau forthwith, or on his assistant, or on the chief clerk. It is required that all persons be at their desks ready for business at 9 o'clock a. m., and continue there until 3 o'clock p. m., unless specially excused or absent from sickness, which will be duly reported to the chief clerk,

in order that he may make the proper entry in his report, to be transmitted at the end of the month by the chief of the bureau to the Secretary of War.

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

[NOTE.—Superseded by the order of the Secretary of War (extending hours from 8½ a. m. to 3½ p. m.), dated 25th April, 1845.]

[Miscellaneous Letters, vol. 36, p. 238.]

ORDNANCE OFFICE,
Washington, April 29, 1845.

SIR: With the percussion muskets for Company G, under your command, have been ordered to be sent 50 small buckskin pads or cushions—like a thumbstall—to slip over the cone, to prevent the cock or hammer from falling upon the naked top of the cone. A short thong with a slit near the end to pass the pad through it will enable the soldier to fasten or attach it to the swivel or guard, so that in firing it will be out of the way, and yet always ready for use when required.

I am, sir, &c.,

WM. MAYNADIER,
Captain of Ordnance, in charge of Ordnance Bureau.

COMMANDING OFFICER

Of Company G, Eighth Infantry, Saint Augustine.

[Letters to W. D., vol. 8, p. 317.]

ORDNANCE OFFICE,
Washington, May 1, 1845.

SIR: In obedience to the order of the President dated 11th instant, and your orders of 25th instant, I have the honor to transmit the report of the chief clerk of this bureau, made in compliance with the thirteenth section of the act of 26th August, 1842, in relation to the duties performed by the clerks, and I fully concur in his statement and in the views therein taken. I have the honor at the same time to report to you that there has been no absence of a clerk from his duty during office hours since the reception of the above orders, and that no complaint has come to my knowledge that any of the clerks employed in this bureau refuse to pay their debts.

I am, sir, &c.,

WM. MAYNADIER,
Captain of Ordnance, in charge of Ordnance Bureau.

Hon. W. L. MARCY,
Secretary of War.

[Inclosure.]

ORDNANCE OFFICE,
Washington, April 30, 1845.

SIR: In pursuance of the duty required of me as chief clerk of this bureau by the 13th section of the act of 26th August, 1842, chapter 202, I have the honor to submit the following report, which, as it is the first

that I have made other than verbally, will refer to the whole period since the passage of that act.

The regulations made by Colonel Talcott, 16th February, 1842, apportioning the regular duties among the several clerks, have remained unaltered, and I have not and do not suggest any modification of them, as a more equal distribution could not be made. Those regulations provide that any clerk may, in addition to his regular duties, be called on to assist in the dispatch of pressing business, whosoever branch of duty it may pertain to, and in all calls of this description which have been made the most prompt and cheerful assistance has been rendered at all hours or on any day, and these extra calls have been much increased since the date of those regulations, as the heavy press of business which has devolved upon me in connection with the United States mineral lands has rendered such assistance absolutely indispensable.

The clerks have generally been at their desks before half-past 8 a. m. in summer and soon after 9 in winter, and have seldom left till after 3 p. m. without special permission. Since the reception of the President's order of the 11th instant the office has been kept open from 8 a. m. to 6 p. m.; the whole of the clerks remaining till 3, and one in turn from thence to 6. Since the reception of the orders from the War Department of 25th instant all the clerks have remained till half-past 3, and one from thence to 6. No calls are reported to have been made between 3 p. m. and 6 p. m., and none of the business of the office is in arrears.

In the foregoing report I have not had reference to Mr. J. W. B., who, although rated and paid as one of the clerks, is employed solely as a draftsman, under the immediate direction of the military assistant of the office, and hence has not been considered as subject to calls upon him as a clerk. It is proper for me, however, to state that since the President's order he has taken his turn of remaining till 6 p. m., after the other clerks had left.

I am, sir, &c.,

GEO. BENDER.

Capt. WILLIAM MAYNADIER,
In charge of the Ordnance Bureau.

[Letters to Ordnance Officers, vol. 7, p. 23.]

ORDNANCE OFFICE,
Washington, May 12, 1845.

SIR: Your letter of 29th ult. states that a kitchen range is necessary for Lieutenant Dyer's quarters. But you wish to be informed if such a purchase, amounting to \$30 or \$40, will be authorized.

It cannot be found, on examination of accounts in this office, that any charge for a "kitchen range" has been heretofore made; but it is found that one or two "cooking stoves," a near resemblance it is supposed to the article you have in view, have been disallowed. I cannot, therefore, authorize the purchase.

I am, &c.,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Capt. E. HARDING,
Allegheny Arsenal.

[Letters to Ordnance Officers, vol. 7, p. 25.]

[Circular.]

ORDNANCE OFFICE,
Washington, May 13, 1845.

SIR: The difficulty sometimes experienced of adjusting accounts and making remittances on estimates, renders it necessary to define specifically, so far as it can be done, the objects to which each of the appropriations to be expended under the direction of this department is applicable.

To the appropriation for "Ordnance service" are properly chargeable all expenditures incurred in defraying the expenses attending the receiving, issuing, preservation, and repairs of arms and other ordnance stores, the purchase or fabrication of tools for use in workshops; the making up of ammunition for the troops, office duties, the purchase of fuel, forage, and stationery, police duties, and small incidental repairs of buildings, such as glazing, whitewashing, &c., and which are not included in the "arsenal" estimates under the general head of repairs and preservation of post, public buildings, &c., also the payment of accounts arising from the mineral land service, and of transportation, ferriages, tolls, and freight, payable by this department, except for the delivery of supplies for the militia.

To the appropriation for "Arsenals" are properly chargeable all expenditures for the erection of new buildings, enlarging or repairing old ones, putting up and repairing fences or inclosures, painting quarters or other public buildings, making or repairing drains or sewers, grading public grounds, paving, and, in general, all permanent repairs and improvements of the post or buildings.

To the appropriations for "Ordnance, ordnance stores, and supplies" are properly chargeable all expenditures for the purchase (for the service of the United States troops) of field cannon and of materials for and the manufacture of gun carriages and field trains for the same, for the purchase of accouterments and equipments for artillery, cavalry, infantry, or riflemen, of shot or shells for field service, and of materials for preparing ammunition; also expenditures for the fabrication of instruments for inspecting cannon, shot, and shells.

To the appropriation for "Arming and equipping the militia" are properly chargeable all expenditures attending the purchase, receiving, packing, issuing, and transporting to their place of destination of all supplies furnished by this department for arming and equipping the militia, under the act of April 23, 1808.

To the appropriation for "Armament of fortifications" are properly chargeable all expenditures for the purchase of garrison and sea-coast cannon and shot or shells therefor, of timber, iron, or other materials for the fabrication of garrison and sea-coast gun-carriages with their implements and equipments, bolster plates, pintle and pintle crosses, and all payments for work done in their manufacture or repair; also all expenses attending the fabrication or repair of casemate and rampart guns. All estimates for the future will be made conformably to the foregoing explanations.

Respectfully, &c.,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

TO the COMMANDING OFFICERS
of all Ordnance Stations.

[Letters to W. D., vol. 8, pp. 326, 327.]

ORDNANCE OFFICE,
Washington, May 31, 1845.

SIR: In obedience to the order of the President, dated the 11th, and your orders of 25th ultimo, I have the honor to transmit the report of the chief clerk of this bureau, made in compliance with the 13th section of the act of 26th August, 1842, in relation to the duties performed by the clerks, and I fully concur in his statement and in the views therein taken. I have the honor at the same time to report that there has been no absence of a clerk from his duty during office hours (except one on leave for one day to attend a funeral out of town) since the reception of the above orders, and that no complaint has come to my knowledge that any of the clerks employed in this bureau refuse to pay their debts.

I am, sir, &c.,

GEO. TALCOTT,
*Lieutenant-Colonel of Ordnance.*Hon. W. L. MARCY,
*Secretary of War.*ORDNANCE OFFICE,
Washington, May 31, 1845.

SIR: In pursuance of the duty required of me by the 13th section of the act of 26th August, 1842, chap. 202, I have to report that none of the business of the clerks in this office is in arrears, and that no better arrangement for the dispatch of business than now exists could, in my opinion, be made.

There has been a regular attendance of all the clerks during the month, from 8½ a. m. to 3½ p. m., with the exception of one for a single day, on leave, to attend a distant funeral; and every day one of the number has remained from 3½ p. m. to 6 p. m. But only one call on business is reported to have been made during the hours last named, and in that case it was a mere call for papers which had been ready for six hours, and the reception of which the individual admitted would not expedite his leaving the city.

I am, sir, &c.,

GEO. BENDER,
Chief Clerk.

Col. G. TALCOTT.

[NOTE.—Monthly reports of the above character were regularly rendered to the Secretary of War until March, 1849, when they appear then to have been discontinued.]

[Miscellaneous Letters, vol. 36, p. 335.]

ORDNANCE OFFICE,
Washington, August 7, 1845.

SIR: Your letter of 1st instant has been received and duly considered. I do not assent to the several points assumed, viz, that muskets at the public armories cost \$20 or \$25, or that workmen cannot be obtained in any required numbers at a future time to meet all demands. The fact that hand labor is dispensed with and everything being now effected with machinery puts at rest all fears of the kind. Indeed, the skill of the eye and the hand of the old practical armorer is entirely dispensed with, and any good mechanic from a machine shop can perform the work at

an armory, the machines having effected a total revolution, improving the quality of the work and reducing the cost thereof. As regards the particular case of Mr. Pomeroy, I suppose there exists insupportable objections to his making flint-lock muskets for the United States, since we are about taking measures to alter all the good flint-lock muskets to percussion; therefore, we cannot increase the number.

I do not say that no private armories will be employed in future to make muskets, but the late Secretary of War (Wilkins) decided that no contract should be made for small arms except on proposals received under advertisements, and then given to the "lowest and best bidder." What chance the old armories would have, under this rule, you know as well as I do. They would be underbid by new men, as was the case last year, for rifles and pistols. It was to avoid this state of things that I have kept and still keep quiet on the subject, as well as from the fact that we have more than half a million of muskets on hand. The labors of Mr. Pomeroy to improve the quality of iron for gun-barrels are duly appreciated, and his success is of great importance, but I do not perceive how his having a contract to make muskets will advance or improve the quality of his iron.

It would afford me great pleasure to see Mr. Pomeroy and all the other contractors for small-arms fully employed at fair prices, but how to effect this under the rules adopted is not within my comprehension. I have lately received a letter from Mr. Pomeroy himself upon this subject, and as I am much pressed with business I beg you to place this communication before him as an answer to his letter also.

With great respect, &c.

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

JULIUS ROCKWELL,
Pittsfield, Mass.

[Miscellaneous Letters, vol. 36, p. 366.]

ORDNANCE OFFICE,
Washington, August 25, 1845.

SIR: I submit two orders which have been communicated to this office by Captain Bell, commanding Saint Louis Arsenal. The order of General Gaines was previously made known to me by Captain Whiteley, from Baton Rouge Arsenal; and, accordingly, I wrote a circular letter to the arsenals within the geographical limits of General Gaines's division, directing that, at the end of each quarter, a condensed report should be made to General Gaines, showing the arms and ammunition which had been received and issued in the quarter, and what remained on hand at each arsenal; but that the voluminous ordnance return of all property in store could not be furnished, and could not be useful to the general.

I issued these instructions because General Gaines desired to have the information, although I did not see that it could be of any utility; nor did I mean to recognize or indicate to the officers of ordnance that the arms and ammunition in the arsenals were placed subject to General Gaines's disposal.

They are aware that General Gaines cannot in time of peace (except as provided in the regulation No. 890) have any control of ordnance stores accumulated in the arsenals of the United States, whether the arsenals be within or without the geographical limits of his division.

The arsenals (which are places for the fabrication, deposit, and accumulation of military stores, as well as of supply and issue) are not located solely or principally for the service of the Army posts in their neighborhood; and the property of the United States in the arsenals is, by law and regulations, as free from the use and order of any military officer (without the sanction of the General-in-Chief—General Regulations, No. 893, or of the War Department, General Regulations, 890) as any other property of the United States.

I take occasion to remark that the arsenals at Baton Rouge and Little Rock are made subject to General Taylor's orders, as provided in Regulations, 890.

In regards to General Gaines's order I have caused his wishes to be complied with; and, at present, I see no inconvenience likely to occur in this matter, unless General Gaines should order issues from the arsenals, and dispose of the ordnance stores, which would probably cause some embarrassment to General Taylor, and to this department.

In regard to Colonel Kearney's order, you may perhaps wish to issue some instructions. The limits of command and authority ought to be defined and understood; otherwise, collisions in the service will arise. Colonel Kearney explains his order by reference to his monthly returns. On examination, I suppose his return may be based on order No. 42, from your office, July 16, 1842. This order No. 42 was issued in pursuance of War Department order of same date. The divisions are now restored, and, it would seem, that arrangement ceases, and the authority there given to commanders of departments. But if their authority is continued and they still make the returns indicated in that order, I cannot suppose that the ordnance officers at the Saint Louis Arsenal are embraced in these returns. The order states "officers of the general staff and of the ordnance, serving in a department." This would cover the case of the officers sent to General Taylor's department. But there are no ordnance officers in Colonel Kearney's department. The arsenals make no part of his command. Order No. 42 was issued on the War Department order regulating leaves of absence. If Colonel Kearney is correct in applying it to the arsenals, he would have authority to give 60 days' leave of absence to the ordnance officers at Saint Louis Arsenal. Such was not the intention of the General-in-Chief, is contrary to regulations, and would remove ordnance officers from the authority of this office. There appears to be no reason why the officers at that arsenal should be on Colonel Kearney's return. They are not subject to his orders. Their enlisted men are not on his return, and as they are borne upon my monthly return to your office, it seems unnecessary and irregular to put them on Colonel Kearney's.

I am, sir, &c.,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Brig. Genl. R. JONES,
Adjutant-General of the Army.

[Letters to Ordnance Officers, vol. 7, p. 221.]

ORDNANCE OFFICE,
Washington, September 22, 1845.

SIR: * * * It is seen from your monthly return that percussion muskets were issued to Captain Taylor; the order was for arms of the same kind as those issued to the First Regiment of Artillery under or-

der for supplies No. 223, of August 5, 1844. It is also seen that you have issued to Captain Thornton 104 percussion muskets on the requisition of Colonel Bankhead. Now this is all wrong and must be disapproved. There is no percussion ammunition sent to Texas. Flint-lock ammunition can be found everywhere, percussion nowhere; and besides, the matter was fully discussed here by the proper authority, and it was decided that the moment of beginning a campaign was not a proper time to effect a change of arms, involving, as it does, an entire change of the manual.

I am, &c.,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Maj. J. W. RIPLEY,
Springfield Armory.

[191, R., 1845.]

UNITED STATES ARMORY,
Springfield, September 26, 1845.

SIR: The arms recently issued to Captain Taylor were of the same kind as those issued to the First Artillery, under order for supplies No. 223, dated August 5, 1844, but they were carelessly entered upon the return as *percussion* instead of "national armory bright, made since 1831, model of 1822."

With regard to the 104 percussion muskets mentioned in your letter, I must claim exemption from all blame for the *issue*, as I find my warrant for so doing in the 68th and 70th paragraphs of the Ordnance Regulations, in the inclosed communications from General Wool and Colonel Bankhead, and in the urgent call of General Gaines upon the executives of several of the States for large bodies of volunteers and militia to march to Texas.

This veteran general, posted near the scene of anticipated operations, officially announced to the country that a large Mexican force was within eight days' march of Texas. I had, therefore, good reasons for believing that Mexico had not only declared war against the United States, but that this overwhelming force, of which the general had certain intelligence, was upon the very borders of this newly-acquired portion of our territory, if, indeed, our soil had not already been invaded by her armies. Under such circumstances would you have had me refuse to deliver the arms for which a *special messenger* was sent, in addition to what I have stated above in justification of the issue? On the contrary, I am confident that you would greatly prefer that every officer in the department should dispense with *forms* in cases of emergency like this, assume the responsibility, and, as far as possible, anticipate the wants of the line, rather than that, by *strictly* adhering to forms, we should afford the slightest ground for complaint on the part of the officers by being slow to furnish them with needful supplies. Besides, I have not forgotten that during the Creek War a requisition was made on a certain lieutenant of ordnance, stationed at the South, which he refused to comply with, on the ground that it had not reached him through the channel pointed out by the regulations. He soon after received a message from General Jackson, the substance of which was, that if he did not make the issue *immediately* he would send a guard to arrest and bring him into camp, and there hang him on the first tree. The requisition was, of course, promptly complied with.

In what manner General Wool might think proper to deal with a major who should refuse to obey his order I cannot say, but as I did not aspire to the same degree or kind of elevation promised by General Jackson to the lieutenant alluded to, I concluded promptly to obey his order, and cannot doubt that after reading this explanation the issue will meet with your entire approbation. The order, however, should have been forwarded to the department, as required by paragraph 68, Ordnance Regulations.

Very respectfully, your obedient servant,

JAS. W. RIPLEY,
Major Ordnance, Commanding.

[Inclosure.]

HEADQUARTERS EASTERN DIVISION,
New York, August 27, 1845.

To Major RIPLEY,
Commanding at Springfield:

SIR: Three companies of the second artillery are ordered to Corpus Christi, Tex.

The colonel has percussion muskets for one company. The other two companies are extremely anxious to have the same musket. As I am decidedly in favor of that arm, I would wish that they might be gratified. It is therefore that I direct that you will furnish, upon the requisition of Colonel Bankhead, percussion muskets, if you have so many on hand, equipments, caps, &c., for two companies.

I am, very respectfully, your obedient servant,

JNO. E. WOOL,
Brigadier-General.

[Inclosure.]

HEADQUARTERS FIFTH MILITARY DEPARTMENT,
Fort Columbus, August 27, 1845.

MAJOR: I have sent to Washington a requisition for muskets with percussion locks for the companies of my regiment ordered to Texas; but as the Transport sails before the order from them for their issue can be received, General Wool has deemed it proper to direct the issue by you on my requisition, which I send by Lieutenant Chase. It is all important that the muskets should be here on Friday morning.

I am, major, very respectfully, your obedient servant,

JAS. BANKHEAD,
Colonel Second Artillery, Commanding.

Major RIPLEY,
Ordnance Corps, Commanding Armory, Springfield.

[Letters to Ordnance Officers, vol 7, p. 230.]

ORDNANCE OFFICE,
Washington, October 1, 1845.

SIR: Your letter of explanation in reference to the issue of arms to Captain Taylor and of 104 percussion muskets on General Wool's order has been received.

You are right in supposing that this department would not have any of its officers cause embarrassment to the public service for the sake of strict adherence to *forms*, but would prefer their dispensing with them in cases of emergency. This is all proper provided the emergency exists, and it is not denied that you had authority for so thinking. Your explanation is received as valid. It is hoped that the precedent you quote, as occurring during the Creek war, would not have been fully carried out even if you had acted differently.

Lieutenant Wainwright has been instructed to settle Mr. Brooks' claim as you suggest; or should the latter decline receiving the sum which it would cost to fill the quarrying holes, Lieutenant Wainwright is to have the ground put in good condition as before the stone was taken away.

Respectfully, &c.,

Maj. J. W. RIPLEY,
Springfield Armory.

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

[Letters to W. D., vol. 8, p. 346.]

ORDNANCE OFFICE,
Washington, October 15, 1845.

SIR: On the Surgeon-General's letter of the 13th instant, which you have referred to me, I have to report: No medical expenses are incurred by the United States at armories or arsenals except for persons who make part of the Army by law, except at one Southern arsenal where slave labor is employed. There, this expense is borne by the appropriation for the work. Mechanics and hired men under this department are not allowed medical attendance at the expense of the United States.

The officers and enlisted men of ordnance are part of the Army by law. Their medical expenses are provided for as the rest of the Army and by the same appropriation.

It would be no advantage or economy to transfer a part of the medical expenses of the Army to the ordnance appropriations.

The Surgeon-General can better direct and regulate such disbursements than the Ordnance Office. Under existing regulations and laws, it would not, I apprehend, be admissible to charge those expenses against the ordnance appropriations.

I am, sir, &c.,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Hon. W. L. MARCY,
Secretary of War.

ORDNANCE OFFICE,
Washington, October 31, 1845.

SIR: I have the honor to submit the following report of operations of the Ordnance Department during the fiscal year ended the 30th of June last.

FUNDS.

Amount per last report undrawn from the Treasury 1st July, 1844.....	\$581,607 48
In hands of disbursing officers same day	28,126 28
The appropriations for the fiscal year 1845, including the standing appropriations for arming and equipping the militia.....	857,480 00
Received during the year from sales, rents, and for damages to arms in the hands of troops.....	64,436 19
Total	1,531,649 95
Expenditures during the year.....	\$988,723 74
In hands of disbursing officers, June 30, 1845.....	36,959 74
Returned to the Treasury from sales	41,231 95
Remaining in the Treasury undrawn June 30, 1845	464,734 52
	<u>1,531,649 95</u>

ARMAMENT OF FORTIFICATIONS.

The expenditures out of this appropriation during the fiscal year have amounted to \$115,234.74. Of the articles procured by purchase or fabrication, the following are the principal, viz:

5 sea-coast and garrison guns, 51 10 and 8 inch columbiads, 25 sea-coast and garrison gun-carriages, 20 8-inch columbiad-carriages, 2 10-inch mortar beds, 100 42-pounder cannon-balls, 9,785 10 and 8 inch shells, 57,836 grape-shot, different calibers, 72,295 pounds bar-iron, 13,439 cubic feet of timber for casemate and barbette carriages,

The number of pieces of ordnance which the different fortifications will require are as follows, viz:

	Pieces.
For works constructed.....	3,528
For works under construction	1,292
For works projected, constituting a part of the system of fortifications.....	2,056
Total number of pieces.....	6,876

Of these there are already provided, and on hand at the forts and arsenals, including *all*, old and new, and of whatever quality, pattern, date, or place of fabrication, 4,135. Omitting such as for peculiarity of pattern, bad metal, length of service, or other reason, are not efficient and safe for use, there will remain 2,900; leaving to be provided 3,976, the cost of which will be about \$1,500,000; or, omitting the guns for the last-noticed works (1,920 pieces), cost \$710,400. The number of carriages of all kinds required is the same as the number of pieces of ordnance. There are already constructed and on hand at the forts and arsenals 1,379 carriages, leaving to be constructed 5,497. The supply of timber on hand and under contract to be delivered is sufficient for the fabrication of 1,857 carriages. There consequently still remains to be provided timber for 3,640 carriages (cost about \$273,000) in order to supply the fortifications constructed, under construction, and projected. Omitting the last, the supply required, and which should be laid in at once, would be for 1,584 carriages; or, considering the surplus which should always be on hand, for repairs and replacing worn-out carriages, at least twice the quantity we now have. The cost of this timber, delivered and stored, will be about \$140,000.

The amount of the appropriations for this object, heretofore usually made from year to year, has been too limited to allow the provision of such a stock of suitable *material* as will insure the prompt and efficient meeting of such demands as an emergency may require. The importance of laying in full supplies, especially of timber, and of erecting at the arsenals of construction commodious, safe, and permanent store-houses for its preservation, has been frequently urged by this department, and is again repeated. The field officer of ordnance, who has been charged with the inspection of arsenals and of the armament of fortifications during the past year, in his report says, on this subject: "At the arsenals of construction it is important that the deposits of timber should be on the most liberal scale. In my late tour of inspection of the armament of fortifications the great difference in the condition of carriages ascertained to be made of seasoned and those of unseasoned timber was sufficient to satisfy me, if other arguments were wanting, that any attempt at economy by limiting our supplies of carriage-timber was a fatal error."

Although not pertaining strictly to a report of operations for the past *fiscal year*, I may state, in evidence of the urgent necessity of furnishing means to enable the department to proceed rapidly with the armament of fortifications, that, within the last four months, the Engineer Department has reported forts ready to receive their armament to the amount of 636 heavy sea-coast guns; which are recommended to be mounted "without delay."

The carriages are yet to be made for these forts, which are among the most important to our defense, including several for the protection of the harbors of New York and Boston.

The estimate for the next fiscal year contains a sum for this object greater than has been usually appropriated, but more than is *really* wanted. The explanatory remarks on that item appended to the estimate are referred to in connection with those here made.

ORDNANCE, ORDNANCE STORES, AND SUPPLIES.

From the appropriation for this object there has been expended, during the fiscal year, \$94,663.74.

The following are the principal articles purchased and fabricated, viz: 50 6-pounder bronze guns, 1 9-pounder trial gun, 50 6-pounder carriages, 8 caissons, 3,773 cartridge-boxes, 8,665 cartridge-box, waist, and saber belts, 2,427 bayonet scabbards, 1,500 sword knots, 1,121 pairs of holsters, 3,007 carbine slings and swivels, 1,500 percussion cannon-locks, 21,000 priming tubes, 606,200 percussion caps for small-arms, 26,530 pounds laboratory paper, 118,696 pounds bar iron, 2,464 cubic feet of timber for field-carriages.

PURCHASE OF SALTPETER AND BRIMSTONE.

Of the appropriation for this purpose, the sum of \$49,932.16 has been applied to the purchase of 524,410 pounds of saltpeter, which has been received and stored at the arsenals. The saltpeter purchased from time to time and laid up in store has been refined and fused, and run into solid masses of suitable size for handling. In this state it is packed in strong boxes, each containing about 400 pounds, and is more conveniently stored, besides the very great advantage thus obtained in point of greater safety from fire, and, it is believed, entire safety from liability to explode.

NATIONAL ARMORIES.

The expenditures at the armories during the fiscal year have been as follows, viz :

	Harper's Ferry.	Springfield.	Total.
For the manufacture of arms, including appendages, component parts, model arms, gauges, tools, &c., and for the purchase of materials for the same.....	\$139, 732 64	\$144, 706 04	\$284, 438 68
For repairs, improvements, and machinery	28, 718 86	28, 341 20	57, 060 06
	168, 451 50	173, 047 24	341, 498 74

The number and kind of arms and appendages completed and turned into store during the same period are as follows, viz : at Harper's Ferry, 2,225 percussion muskets, 1 model percussion rifle, 7,472 wipers, 20 ball screws, 1 bullet mold, and 1 cone ; and at Springfield, 12,107 percussion muskets, 300 percussion cadet's muskets, 996 screw-drivers, 3,480 wipers, 50 ball screws, 868 spring vises, and 2,370 leather cone pads. Besides these, there were at each armory many component parts of small-arms and appendages, in different stages of fabrication, which had not been taken from the work-shops for assembling into the complete arm.

The other work done at each of these armories is shown in the statement from the armories and arsenals, accompanying this report, to which reference is respectfully made.

ARMING AND EQUIPPING THE MILITIA.

The expenditures from the appropriation for this object during the fiscal year amount to \$174,911.99. The principal articles obtained therewith, by fabrication and purchase, are as follows, viz :

25 6-pounder bronze guns, 13 12-pounder bronze howitzers, 50 field-carriages, 1,600 muskets, 2,100 rifles (percussion lock) and 1,800 rifles (flint lock), 1,000 Hall's carbines, 4,500 pistols, 1,000 artillery swords, 500 musicians' swords, 1,805 musket, carbine, and pistol cartridge-boxes, 2,500 cartridge-box, waist, saber, and sword belts, 775 bayonet scabbards, 320 pairs holsters, 2,000 copper rifle-flasks, 83,593 pounds iron for gun-carriages.

The statements hereto appended, marked A and B, exhibit the apportionment of arms for the year 1844 to the several States and Territories, under the act of 1808, according to the number of effective militia included in the returns of each, and the supplies of muskets, or other arms in lieu thereof, issued to them during the year ended 30th June, 1845, in conformity with the requisitions of the proper authorities.

The issues of ordnance and ordnance stores of every description to the regular Army during the same period are embraced in statement C.

ARSENALS AND DEPOTS.

The expenditures during the fiscal year from the appropriation for "arsenals" amount to \$99,286.70. This sum has been applied to repairs and preservation of buildings, sites, and inclosures ; to additions to old and erection of new buildings, wharves, and inclosures, and to such permanent improvement at the different arsenals and depots as were stated in detail in the remarks on the estimate as the objects intended to be effected thereby.

The work done under this head is more particularly set forth in the statement of principal operations, exclusive of ordinary work at the armories and arsenals, accompanying this report, and before referred to.

The experiments with the ballistic pendulums, which have been in progress for more than two years, have been so far completed as to enable the officer charged with conducting them to make a full report to this department. This report, embracing a description of the pendulums used, full statements of the experiments in detail, with a summary thereof, and the conclusions derived from them, has been printed by order of the War Department. The chief points to which they relate will be found stated in the report from Washington Arsenal, hereto appended.

The inspection of muskets at the arsenals and armories, for the purpose of classifying them according to quality, commenced in 1842, and, since continued, has been completed. This inspection included all muskets made prior to 1832. It has been critically made, under the direction of an ordnance officer, by regular inspectors from each of the national armories, and has resulted in the following classification: The 1st class includes all good and serviceable arms at the armories and arsenals made since 1831, and contains 299,023 muskets. The 2d class includes all good and serviceable arms at the armories and arsenals made from 1821 to 1831, inclusive, which have not been in use, and contains 76,185 muskets. The 3d class includes all good and serviceable arms at the armories and arsenals made from 1812 to 1820, inclusive, which have not been in use; also all good and serviceable muskets made since 1812, which have been in use, and contains 228,291 muskets. These muskets are so classified, arranged, and reported at the different arsenals and depots; thus exhibiting not only the number, but the quality and pattern of all the muskets in store. Percussion arms only are now manufactured, and measures are in progress for altering to percussion all the muskets of the 1st and 2d classes with flint locks. Those of the 3d class are not considered suitable for such alteration. Muskets of the 4th class, which includes those made prior to 1812, as also all un-serviceable or damaged arms of later date, not worth repairs, have been collected at depots for sale, agreeably to the act of March 3, 1825. Most of them have been so disposed of and the proceeds returned to the Treasury, as stated in a former part of this report. There are, in addition, 24,629 muskets set aside for repairs, to be added when repaired to their appropriate class.

The regulations of the department now in operation relative to the inspection and proof of iron ordnance at the foundries will, it is believed, secure the reception by the government of none which may not be confidently relied on and used with safety for a reasonable period of service. The quality of those received prior to the adoption of these regulations is not entitled to so much confidence. The department has not, however, failed to adopt every precaution in its power to exclude from use all cannon not of undoubted strength to resist the explosive force of service charges. A minute inspection of the metal of iron guns in depot and at the forts, under the supervision of the colonel of ordnance, has been made to some extent and is still in progress. The results already obtained authorize the expectation of a satisfactory accomplishment of the object in view. The report of the officer having the immediate superintendence of the work is appended.

The establishment of a national foundry has been heretofore so fully discussed that nothing remains to be said concerning it but to refer to former reports from this department and other public documents on the subject.

The preparation of detailed drawings for a complete *uniform* system of artillery has constituted part of the office duties during the year. It is still in progress, and advancing to completion as fast as the force employed in its execution, necessarily limited by its uniformity, will admit.

The duties of the department embrace also repairs of the whole armament of our fortifications and of the arms in the hands of our regular troops; the procurement, care, and preservation of all the military stores of the country for the land service, as well for the militia as for the Regular Army, with the correspondence and accountability connected therewith. These stores are deposited at the arsenals and depots in different parts of the country, and are so apportioned among them as it is thought will best secure their preservation, and at the same time meet the calls most likely to arise in any direction. Each article is periodically examined, and receives such treatment as is necessary to put or keep it in good condition for use. Inventories are annually prepared and forwarded to this office, exhibiting all the property added to the stock during the year and how obtained; all that has been taken therefrom and how disposed of, with the quantity remaining, and its money value estimated according to cost and condition. These inventories, made up to the 30th June last, exhibit the following aggregates of estimated value:

Lands, magazines, storehouses, quarters, barracks, workshops, and machinery	\$3,794,240 01
Artillery of every description, with carriages, implements, and projectiles	1,966,641 89
Small arms of every description, with their accouterments and appendages	8,951,046 77
Ammunition of all kinds, including powder and materials for its manufacture	645,661 60
Component parts of artillery carriages and equipments, and of small arms and accouterments	335,053 47
Gins, carts, implements, and tools of every description in use or in current service	291,473 19
Unwrought materials and tools in store	534,875 40
Total	16,518,992 33

The funds and property in the hands of agents of this department have been regularly accounted for, and their accounts examined in this office and transmitted to the Treasury Department for settlement. During the year there has been no delinquency in this respect.

MINERAL LANDS.

The mineral lands of the United States, the supervision of which is assigned to this bureau in addition to its duties as above described, are next in order.

Lead mines of the Upper Mississippi or the Galena District.

The mining district which has heretofore borne the designation of the Upper Mississippi embraces 17 townships and fractional townships in the northwest corner of Illinois, the mineral lands in the Territory of Wisconsin from the Illinois line north to the Wisconsin River, and those on the opposite side of the Mississippi, in the Territory of Iowa; but, since the formation of a new district lying higher up the Mississippi, which will be spoken of in its proper order in this report, it will be necessary to designate this one by another name; and that of the Galena District has been adopted from the name of the principal town within its boundaries.

Since the date of the last annual report, which, in speaking of this

district, referred to the suits then pending in the case of Gear, the Supreme Court of the United States has certified its opinion to the district court of Illinois that "it was not intended to subject lead-mine lands in the districts made by the act of June 26, 1834, to sale as other public lands are sold, or to make them liable to a pre-emption by settlers," and that "digging lead ore from the lead mines upon the public lands of the United States is such a waste as entitles the United States to a writ of injunction to restrain it."

Immediately upon the reception of a copy of this opinion, Mr. Floyd, the superintendent of this district, was instructed to insist upon the payment of rent for all mineral dug on lands for which patents had not issued; to insist upon full payment of all balances of rent due on leases, and to renew no lease until such balances had been paid. These instructions further allowed him to employ counsel to defend lessees in suits brought against them for digging by those pretending rights under certificates of entry, or as pre-emptionists, should any such be again attempted, and to apply for writs of injunction, and to have suits brought for the recovery of rents.

The superintendent gave notice, through the newspapers, on the 23d of May last, of the reception of these instructions; and, on the 2d of June, addressed this office, stating that it had created much excitement among those who held entered land: that they protested against the United States assuming any right over these lands, or, at any rate, until the money which they had paid to the Land Office should have been paid back to them; and he (the superintendent) asked whether it would not be advisable to modify his instructions. In answer to this letter he was told, 12th of June, that there could be no cases of entry in Jo. Davies County, Illinois, or in Du Buque County, Iowa, as the lands in the mining portions of those counties had never been proclaimed for sale; and as to those in Wisconsin, it was thought there could have been but few entries allowed on the lands indicated as containing mines by the plats of survey, although it was known that many entries were allowed when the evidence of their containing mines was merely made known to the register and receiver by individuals (both cases equally excluded by the President's proclamation); but it was the desire to leave it to his discretion how far to push at once the right to lease.

After these second instructions had been sent off, a memorial, numerously signed, and addressed to the President of the United States, was forwarded to him with a letter from the honorable Mr. Hoge, who joined with the memorialist in asking a modification of the instructions which had been given to the superintendent. This letter and memorial were referred to this office; and in the report thereon of the 20th June, 1845, a copy of the modification of 12th June, above mentioned, was given. This report was also accompanied by a copy of the opinion of the Supreme Court, and of the proclamations which reserved the mineral lands from sale.

A further letter was received not long after from the superintendent, bearing date 28th July, stating that, in order to facilitate the further leasing of the mines, he circulated handbills through the country appointing given days to be at given places for that purpose; that at Mineral Point, by apparent concert of action, none were called for; at Potosi, they took leases promptly; but at Du Buque, in Iowa, he was met by persons who attempted to argue him into an abandonment of his purpose; and when that failed, by threats of forcibly carrying him across the river (*i. e.*, out of the Territory); and at length, by a request that he would suspend operations till he could report this state of feeling, and obtain further instructions, to which he consented, and it was the object

of that letter to obtain. The letter further stated that the people of Du Buque really appeared to believe that Congress had passed no law authorizing the leasing of mines *west* of the Mississippi; overlooking entirely, it would seem, the fact that there were two acts passed 3d March, 1807, one authorizing the leasing in what was the then Territory of Indiana, *east* of the Mississippi, and the other the mines "on all lands ceded or secured to the United States by treaty with a *foreign* nation, or by cession from any State;" and that it must have been in virtue of this last-named act that the mines in Missouri were leased, till the passage of the act of 3d of March, 1829, which authorized their sale. As regards the lead-mine lands in Wisconsin, the superintendent states that, in a long interview with the chief-justice of that Territory, that officer was understood to maintain that no matter how fraudulent the *entries* may be, yet the government has actually parted with the title by its agent of the Land Office.

This office has, on many occasions during the last ten years, urged that these lands be sold; and I cannot forbear, on this occasion, renewing that suggestion, as I believe that an act might be prepared which would be satisfactory not only to the large claimants, but to the working lessees. By far the largest and richest portion of these mines are held and worked under entries at the Land Office, or they are on lands which have been granted by special acts of Congress, or are such as are held by pre-emption claimants, who keep possession in defiance of the leasing system. Even of those who take leases, few comparatively acknowledge the quantity they dig, or that is dug by others under bargain with them, or who pay thereon the rent in full; while others, again, it is asserted, obtain leases merely as an additional means of preventing their claims from being "*prospected*" (*i. e.*, dug upon by those seeking new *lodes*), and thus proving their land to contain mines, till it shall have been sold to them at the ordinary price, and thus the yield to the government is merely nominal.

The following statements will show the operations which have come under the cognizance of this bureau during the last year, it being borne in mind that the term of the leases is for one year only, but renewable, and that the rent is *six* per centum of the pure lead obtained from the mineral dug, or a like per centum of its market price in money at Galena.

Number of leases granted from October 1, 1844, to October 1, 1845. [The last annual report on this branch of duty having been brought up to the first-named date.]

Illinois.....	343
Wisconsin.....	165
Iowa.....	10
Total.....	518

The number of pounds of mineral reported within the year by the lessees as having been dug on the lands leased to them is.....	7,541,993
Pounds of pure lead which this should yield at 70 per cent., that being the average yield of the mineral from these mines.....	5,279,400
Pounds of pure lead due thereon as rent to the United States, at 6 per cent.....	316,764
Pounds of lead paid to the United States, in kind, during the year.....	165,175
Ditto paid for in money.....	33,377

	198,552	
Of which there was paid for rents which accrued prior to the year.....	37,077	161,475
Leaving this amount due for the operations of the year.....		155,289

The expenditures on account of these mines within the year, including all salaries, services, and incidental expenses, are.....	\$5, 823 80
From which deduct fees of counsel and costs of suits, &c., incurred prior to the year, together with the salary of special agent, till that office was dispensed with.....	2, 825 45
Leaving for the current expenses of this district.....	2, 998 35

Mines in the south part of Illinois.

In my two last annual reports it was stated that no leases or permits had been granted for any part of the sixty-eight sections which were reserved from sale as mineral lands in the Shawneetown land district, in 1815, since the expiration of the permits to Shackleford and others, and to Gordon and others, in 1843, in consequence of the want of mineral agents there; and that such an agency had not been recommended from a belief that the expenses would be greater than the proceeds. During the present year, however, several applications having been received for permits to explore these mines under a revived confidence that they would be found rich in metals, and one of the military storekeepers of this department being released from duty by the breaking up of the depot of arms at Rock Island, he was ordered to take up his quarters temporarily at these mines, and directed to overlook and certify such selections as might be made under any permits granted by the War Department, and to examine and report as to the condition and probable value of the mines. Several such permits have been granted, ten in all, to persons to select not exceeding one square mile each; but as yet no selection has been returned in such form that a lease could be founded thereon, and a sufficient length of time has not elapsed to obtain the report required.

Mines in the State of Arkansas.

No leases, or permits for selections of tracts with a view to leases, have ever yet been made for any part of the five townships on the northern confines of this State, which were reserved from sale as mineral lands in July, 1842, from the continued inability of this office to assign any of its officers to superintend the operations there, and the continued belief that the expense which would attend the appointment of an agent would be greater than the proceeds likely to be obtained as rent.

Mines of Lake Superior.

In the annual reports from this office of 1st November, 1843, and 1st November, 1844, I stated what were the causes which led the War Department, in April, 1843, to grant permits for the selection of mining tracts on the southern shore of this lake, viz: That it was represented that large bodies of unauthorized persons were preparing to take possession of these mines, which it was feared would produce collisions with the Indians; and it being thought better to authorize persons to select tracts, with a promise of leases for the same upon receiving an obligation on their part to report their transactions, and pay to the government a stipulated rent rather than to risk its falling into the hands of persons acting without authority. I also stated that up to the date of the last-mentioned report twelve leases, for three miles square each, had been granted, and bonds obtained for the fulfillment of the conditions. The

last report further spoke of numbers of permits having been granted, the selections under which had not been up to that time reported.

Permits continuing to be called for in numbers far beyond the original expectation, it was determined by you, on the 21st of March last, to issue such as would allow the selection of only one square mile each; and even with this limited area, the number which has been called for up to 17th of July had become so great that a stop was put to their further issue after that date, at least till those already issued had been located, or the year allowed for their location had expired. This was also made known to the superintendent of the district, who had been authorized to certify selections made by persons in that district, who should state to him that they had neglected to obtain the customary permit only from being unacquainted with the requirements in such case, but were prepared to give the customary bond.

Although the original instructions given to the special agent in 1843, in relation to these mineral lands, described them as being in the region of country lying south of Lake Superior, which was acquired from the Chippewa Indians, and the permits then issued by the Secretary of War limited their operation to the lands south of the lake, and it was that form of permit only which the special agent was directed to use, yet, upon the reception of his report of operations, dated 4th of March, 1844, it appeared, from a list of applicants which accompanied it, that many of them had applied for tracts on Isle Royale, an island lying about sixty miles north of the south shore of the lake. The report stated that although he had concluded to issue none of the permits himself, all applicants had been required to sign a set of regulations, commencing with one of these printed forms of permit. It also appeared, by reference to marks on the list spoken of that none of those who had applied for tracts on Isle Royale had, up to that time, reported their selections; and it was not known in this office what had been done in relation thereto till the 31st of May following. On that day the special agent lodged in this office a rough diagram of the island, showing it divided by imaginary lines into forty-three squares of three miles square each, as near as the shape of its coasts would admit, numbered from 1 to 43, with a name set opposite each number, and an indorsement of the agent thereon, recommending that whenever the lands should be surveyed the Secretary of War should issue leases for the same; this, too, although it appeared by his report above mentioned that these persons must all have signed the regulations restricting them to the region south of the lake; and, upon such a transaction, it has been importunately urged by several of the persons so named, or their assigns, that leases should be granted to them. It moreover appeared in the course of 1844, and up to the 6th of February, 1845, that even regular permits, which restricted the selection to the region south of the lake, had been located on this island in conflict with those of 1843. In consequence of this state of things, and to take away all pretense for misunderstanding the intention of the government, it was recommended to your predecessor on the day last named, and obtained his approval, that all future permits should contain a special clause making known that Isle Royale could not be embraced in their operation, and no selection of a tract thereon has ever been recognized.

To return to the transactions south of the lake. Between the date of the last annual report and the 17th July last, when the further issue of permits for this region ceased, as above mentioned, 787 were sent from this office. In addition to which, 31 of those which were issued by the former special agent, in 1844, have been returned to this office

located, together with 75 certified locations, on applications to the present superintendent.

The accompanying tabular statement D will show the States and Territories from which the whole of these applications for permits were made, by whom the permits were signed, the size of the tracts authorized to be selected, the number returned to the War Department with the selection described thereon, the number of leases prepared and sent out for signature and bond, preliminary to being executed on the part of the United States, and the number executed and returned to the lessees.

During the last winter, Hussey & Co., the holders of leases Nos. 4, 5, and 6, spoken of in the last annual report, represented that, in the present condition of the country, they could not advantageously smelt their ores in the mineral region, as conditioned in their leases, and they therefore asked permission to transport those ores out of said district in their crude state. After much consultation and reflection, your predecessor consented to allow them to remove not exceeding 500 tons, upon condition that they should not carry it beyond the bounds of the United States, and should pay the same per centum at the place of smelting as was provided for in the leases if smelted where dug, without any deduction therefrom for the transportation. This agreement, when returned with the signatures of these lessees and their sureties, received your approval. Like applications were soon after made by the holders of leases Nos. 1, 2, 3, 8, and 10, and permission was granted to them on the same conditions. It is represented that the *black oxide* of copper, the only ore which has thus far been removed under permission, is easier converted into sulphate of copper (blue vitriol), for which there is a constantly increasing market, than the metal could be which might be obtained from it by smelting, and hence that it will yield a greater profit to the miners by being sold in that state. It is even asserted that the other descriptions of copper ore, after being crushed and washed in the mining district and transported in that condition, are also better suited to the operations of the manufacturers of *vitriol* than if smelted; and that moreover, by this process of conversion into *vitriol*, the silver which they may contain is separated and left in the best condition for further treatment. In this view, it is believed that it will be of advantage to both parties to these leases that the six per centum of all metal obtained from the ores dug, which the leases provide to be paid to the United States as rent, shall be changed to six per centum of the price paid for these ores in the condition in which they reach the manufacturers, with six per centum of the market value of the silver thus separated from the copper.

On the first of September last, during the absence of General Stockton, the superintendent, a circular was sent out to the various lessees and their agents, by the assistant left in charge as acting superintendent, containing a number of interrogatories, with a view to obtaining their reports as to the condition of things within the bounds of the several tracts. When the last report from that region which has come to hand was made, the answers had been but partially received. The accompanying statement E will present a synopsis of these answers, together with the quantity of ore shown by the returns, as far as received, to have been dug, and the quantity which has been shipped for the seaboard under the special permissions hereinbefore mentioned.

No rents have been yet received by the United States for the products of these mines. The expenses from the first establishment of the agency,

in 1843, up to 30th September last, have been \$19,385.37, which sum has been paid from the appropriations for ordnance service.

If the system is carried on, it would seem proper that a distinct appropriation should be made for the mineral-land service, and my estimate for the ensuing fiscal year contains an item for that purpose.

Mines of the Mississippi above Prairie du Chien.

In the course of this last year so many applications were received, asking permits to locate tracts with the view of obtaining leases thereof on the St. Croix, Wisconsin, and Kickapoo Rivers, where it was stated that deposits of valuable ores were believed to exist, that a new district was formed, to embrace the mineral lands lying on both sides of the Mississippi from Prairie du Chien to the falls of St. Anthony, extending back to the heads of the streams falling into the Mississippi within that distance, and John C. McLemore, esq., of Tennessee, was appointed the superintendent thereof on the 12th of July last.

The permit for three miles square in this region, which was mentioned in my last annual report, expired by its own limitation without a return thereof; and, although the five others mentioned in that report as having been granted for three sections each have been returned, yet no leases have been prepared on either of them.

On the 14th of February last another permit was issued for a tract of three miles square on the St. Croix, the selection under which having been protested against as interfering with the rightful claims of others, the lease has been refused; and on the 10th of March another was issued for three sections on the Wisconsin and Kickapoo, which has not yet been returned. Your order of 21st of March, hereinbefore spoken of, restricting permits to one section, then became applicable to this district; and of the forty-eight since granted therein, none have exceeded that area. No selections under these have been yet reported, and consequently no leases executed.

The superintendent has been directed to report, as early as practicable, the condition of things in this new district, and its prospects as a mining region. His report may be looked for in the course of the next month.

G. TALCOTT,

Lieutenant-Colonel Ordnance.

Hon. W. L. MARCY,

Secretary of War.

[Extracts from annual reports of operations at the arsenals for the year ended June 30, 1845.]

* * * * *

WASHINGTON ARSENAL, COMMANDED BY CAPTAIN A. MORDECAI.

The operations have been such as pertain to an arsenal of construction; making gun-carriages, preparing ammunition and military stores for the troops in garrison and the field, fabricating the various inspecting instruments for the inspection of ordnance and projectiles at the foundries, and the care and preservation of the stores. Besides these principal and ordinary operations, the following special subjects have occupied

the attention of the officer in command, and he has made on them, to the Ordnance Office, special and detailed reports, from which this summary is taken:

1. *Experiments on gunpowder.*

These experiments, which occupied the officer near two years, were very careful and elaborate, and were made with the aid of complete and accurate apparatus. His report in full has been printed by order of the Secretary of War for the use of the Army. The experiments relate chiefly to the following points:

1st. The mode of manufacturing gunpowder best adapted to the military service, both for ordnance and small arms; embracing a comparison of a great variety of kinds of gunpowder, differing from each other in the proportions of their ingredients, in the mode of incorporation, in their density, in their granulation, &c.

2d. A comparison of the methods in use for the proof of gunpowder, the degree of reliance to be placed on these methods, and suggestions of an accurate and reliable proof.

3d. Experiments to determine the proper charges of cannon and small arms, the proper windage of balls, the use of wads, and the best manner of loading guns.

2. *The manufacture of percussion caps.*

It having been determined to apply the percussion lock to all the small arms in our military service, instructions were given from the Ordnance Office to commence the manufacture of percussion primers. This was almost an entirely new branch of manufacture in the United States; and, as the percussion caps for the military service differ in size and form from those used by sportsmen, it was necessary to contrive machinery for the new manufacture, and ascertain by careful experiments the best manner of making the percussion powder. These objects have both been attained at this arsenal and at Watervliet Arsenal.

For this branch of manufacture two new machines have been constructed—one for making the copper caps; one for priming them with the percussion powder. The powder used is the fulminate of mercury, mixed with half its weight of saltpeter. The fulminate of mercury is prepared according to the process used in France, which is nearly the same as that proposed by Ure for the British service.

3. *Making leaden balls by compression.*

The Secretary of War, having approved the recommendation of the ordnance board, that lead bullets should be made by compression, instructions were sent from the Ordnance Office to construct a machine for the purpose at this arsenal. The machinery has been contrived, was nearly completed at the date of Captain Mordecai's report, and no doubt is entertained of its successful operation.

* * * * *

EXAMINATION OF IRON ORDNANCE (LIEUTENANT WALBACH).

In August, 1843, the colonel of ordnance was instructed by the Department of War to make a critical examination of the quality of the iron cannon at the several forts and arsenals. In October last Lieutenant

Walbach was detailed his assistant, and has made examinations and tests under Colonel Bumford's direction. The following is extracted from Lieutenant Walbach's report of his operations:

Programme of experiments.

- 1st. The determination of the specific gravity.
- 2d. The tensile strength of the metal.
- 3d. The character of the fracture.
- 4th. A proof to extremity (both by gunpowder and hydrostatic pressure) of several cannon, affording different results under the foregoing tests.

The facts resulting from the three first having been confirmed by the proof trials under the fourth head of the experiments, they were regarded as sufficient data for the subsequent classification of the cannon in service.

The first examination was of samples cut from the trunnions of the guns. From a preliminary set of experiments it appeared conclusive that the results could not be relied on; 1st, on account of the frequent occurrence of sand, scoriae, &c., which, becoming inclosed in this part during the casting, effects both the tenacity and density of the metal; 2d, from the rapid cooling or chilling of the metal due to this comparatively small portion of the gun, whereby the specific gravity is increased at the expense of its strength.

As these samples did not afford an average of the gun, and could not be regarded as an index of its quality, specimens for trial were taken from the swell of the muzzle, 1st, because the metal cooling there in a larger mass it would be more homogeneous, and would approximate in character that of the body of the gun; and, 2d, that in this part it would further be contiguous to the sample-plate taken by order of the department from the cannon recently cast and deposited in the model arsenal as a specimen of the gun. Cylinders measuring $2\frac{1}{2} \times 1\frac{1}{4}$ inch were accordingly cut from the muzzles of all the iron cannon in depot and battery at Fort Monroe, amounting in number to 39 42-pounders, 419 32-pounders, 121 24-pounders; total, 579.

The results obtained from the trials upon these are satisfactory and interesting, exhibiting a striking relation between the strength and density of the metal under a certain character of fracture and the durability and quality of the gun. The details of each gun cannot be stated; they are, therefore, limited to the following tables, extracted in a summary form from the records of the experiments:

TABLE No. 1.

Abstract from the details of the trials exhibiting the relation, or the correspondence of the strength and specific gravity of forty cannon, selected from the extreme cases in each instance.

Cases affording highest strength.			Cases affording lowest strength.		
Description of gun.	Character of fracture.	Description of gun.	Character of fracture.		
	Tensile strength per square inch.	Specific gravity.		Tensile strength per square inch.	Specific gravity.
32-pounder, No. 6	28639	7.22	32-pounder, No. 47	19891	7.08
32-pounder, No. 14	28216	7.20	32-pounder, No. 49	18200	7.09
32-pounder, No. 40	28639	7.25	32-pounder, No. 105	26506	7.11
32-pounder, No. 97	28216	7.23	32-pounder, No. 106	18340	7.10
32-pounder, No. 113	27934	7.20	32-pounder, No. 107	18891	7.12
32-pounder, No. 124	29485	7.20	32-pounder, No. 185	21019	7.09
32-pounder, No. 127	28789	7.20	32-pounder, No. 201	18340	7.13
32-pounder, No. 137	29344	7.19	32-pounder, No. 206	19609	7.13
32-pounder, No. 140	30049	7.20	32-pounder, No. 208	19186	7.10
32-pounder, No. 261	28143	7.19	32-pounder, No. 238	18480	7.13
32-pounder, No. 275	29062	7.19	32-pounder, No. 269	19609	7.12
32-pounder, No. 282	29344	7.19	32-pounder, No. 359	20737	7.12
32-pounder, No. 331	30472	7.22	32-pounder, No. 364	20878	7.08
32-pounder, No. 334	29636	7.20	32-pounder, No. 366	20052	7.11
32-pounder, No. 343	27652	7.21	32-pounder, No. 404	18824	7.13
32-pounder, No. 344	29636	7.20	32-pounder, No. 448	17635	7.08
32-pounder, No. 402	27793	7.22	32-pounder, No. 449	17494	7.12
32-pounder, No. 415	28496	7.22	32-pounder, No. 451	17353	7.10
32-pounder, No. 440	28216	7.19	32-pounder, No. 451	17917	7.10
32-pounder, No. 445	27793	7.20	32-pounder, No. 452	17913	7.13
Mean of 20 trials.	29331	7.205	Mean of 20 trials.	19293	7.109
Color: Bright or light gray, and often mottled; the mottle comprises several varieties.		Color: Generally of a dark gray, with no appearance of mottle; sometimes of a dull and non-metallic aspect; at other times of a brilliant luster, varying with the size and aggregation of its crystals.		Color: Generally of a dark gray, with no appearance of mottle; sometimes of a dull and non-metallic aspect; at other times of a brilliant luster, varying with the size and aggregation of its crystals.	
Structure: Close and compact, under a fine, uniform, crystalline arrangement.		Structure: Rather close and even; not hackley.		Structure: Open and granular, with large plumose and stellated crystals, often irregularly grouped.	
Fracture: To the file and drill, and under the lathe of medium hardness.		Fracture: Rough, uneven, and hackley.		Fracture: To the file and drill, and under the lathe quite soft.	
Resistance: To the file and drill, and under the lathe of medium hardness.		Resistance: To the file and drill, and under the lathe of medium hardness.		Resistance: To the file and drill, and under the lathe quite soft.	
Aspect of the turned surface: Smooth and even, with very few and small cavities.		Aspect of the turned surface: Smooth and even, with many large stellated and plumose cavities, apparently the beds of the crystals upset by the action of the turning-tool.		Aspect of the turned surface: Rough and uneven, with many large stellated and plumose cavities, apparently the beds of the crystals upset by the action of the turning-tool.	

The relation of the strength and specific gravity noted in the foregoing table of the extreme cases is to be generally remarked throughout the metal of an intermediate value, the character of the fracture varying also as its quality approaches either limit.

There are several cases, however, where a very high specific gravity occurs with a low degree of tenacity, although instances of a low density with disproportionate strength are very rare; in such, the strength never exceeds a medium value.

The experiments made, with the greatest care, upon 579 different samples, appear conclusive that—

1st. A high degree of tenacity is always accompanied by a proportionate density.

2d. When the density is low, the tenacity is of a corresponding low or medium value.

3d. When the density, however, is high, the tenacity may have either a high or low value, according to circumstances.

This last is in conformity with the results dependent upon the peculiar treatment of the iron, it being known that the continued fusion of cast-iron after liquefaction increases both its density and tenacity up to a certain period, and that, carried beyond this, the specific gravity attains a higher value, while its tensile strength is weakened.

TABLE No. 2.

Summary of comparative tensile strength and endurance of certain guns subjected to high and extreme proof.

Description.	Specific gravity.	Tensile strength. Pounds.	Endurance.	Rank of strength.	Rank of endurance.
6-pounder, No. 7, cast at South Boston foundry in 1844.	{ 7.213 }	{ 32, 231 }	Sustained— 16 rounds, with 2 pounds of powder, and an additional ball at each round, making the 16th charge 2 pounds and 16 balls. 4 rounds, with 24 pounds of powder, and successively 13, 14, 15, and 16 balls at a charge 16 rounds, with 3 pounds of powder and 16 balls each; and, finally, 2 rounds, with 6 pounds of powder and 7 balls, and could not be burst.	{ 1 }	{ 1 }
6-pounder gun, cast at West Point foundry, 1838.	{ 7.29 }	{ 25, 247 }	2,000 rounds, with $1\frac{1}{2}$ pounds of powder, 1 shot and sabot; and 23 rounds, increasing from $1\frac{1}{2}$ pounds, 1 shot, and 1 wad, to 6 pounds, 6 shot, and 6 wads, and did not burst. 20 rounds, with $10\frac{3}{4}$ pounds of powder, 1 ball, and 2 wads. 20 rounds, with 16 pounds of powder, 2 balls, and 2 wads. 10 rounds, with 16 pounds of powder, 3 balls, and 2 wads. 1 round, with 16 pounds of powder, 4 balls, and 2 wads. 1 round, with 16 pounds of powder, 5 balls, and 2 wads. 1 round, with 16 pounds of powder, 6 balls, and 2 wads. 1 round, with 16 pounds of powder, 7 balls, and 2 wads; and burst at the last fire.	{ 2 }	{ 2 }
32-pounder, No. 25, Bellona foundry, 1829.	{ 7.23 }	{ 24, 963 }	20 rounds, with 16 pounds of powder, 1 ball, and 2 wads. 20 rounds, with 16 pounds of powder, 2 balls, and 2 wads. 10 rounds, with 16 pounds of powder, 3 balls, and 2 wads. 1 round, with 16 pounds of powder, 4 balls, and 2 wads. 1 round, with 16 pounds of powder, 5 balls, and 2 wads. 1 round, with 16 pounds of powder, 6 balls, and 2 wads. 1 round, with 16 pounds of powder, 7 balls, and 2 wads; and burst at the last fire.	{ 3 }	{ 3 }
32-pounder, No. 27, Bellona foundry, 1829.	{ 7.26 }	{ 24, 682 }	20 rounds, with $10\frac{3}{4}$ pounds of powder, 1 ball, and 2 wads. 20 rounds, with 16 pounds of powder, 2 balls, and 2 wads. 10 rounds, with 16 pounds of powder, 3 balls, and 2 wads. 1 round, with 16 pounds of powder, 4 balls, and 2 wads. 1 round, with 16 pounds of powder, 5 balls, and 2 wads; and burst at the last fire.	{ 4 }	{ 4 }
32-pounder, No. 44, Bellona foundry, 1829.	{ 7.26 }	{ 23, 040 }	1 round, with 16 pounds of powder, 4 balls, and 2 wads. 1 round, with 16 pounds of powder, 5 balls, and 2 wads; and burst at the last fire.	{ 5 }	{ 5 }
32-pounder, No. 43, Bellona foundry, 1829.	{ 7.28 }	{ 19, 718 }	400 rounds, service charges, and burst by hydrostatic pressure under 9,591 pounds per square inch of fractured surface.	{ 6 }	{ 6 }
32-pounder, No. 46, Bellona foundry, 1829.	{ 7.063 }	{ 19, 694 }	132 rounds, service charges, and burst at target practice. This metal has many flaws and cavities.	{ 7 }	{ 7 }
32-pounder, No. 61, Bellona foundry, 1829.	{ 7.034 }	{ 16, 313 }	Burst, by hydrostatic pressure, under 8,483 pounds per square inch of fracture Sustained— 20 rounds, with $10\frac{3}{4}$ pounds of powder, 1 ball, and 2 wads. 16 rounds, with 16 pounds of powder, 2 balls, and 2 wads; and burst at the last fire.	{ 8 }	{ 8 }

From an inspection of table No. 2 it appears that the durability of the gun bears a close relation to the specific gravity and strength of the metal, and the results comprised in tables Nos. 1 and 2 are thought to afford satisfactory data for the subsequent classification of the cannon under examination.

In order to define the lowest limit of strength admissible to guns of the 1st class, reference was had to experiments on the tenacity of the iron cannon recently cast at Boston, where it appears that the lowest strength was 24,500 pounds to the square inch. Lieutenant Walbach's trials furnished the highest limit of such as were to be rated in the 3d class, while all others of doubtful or intermediate value were arranged to the 2d class.

The following classification was accordingly made in conformity therewith:

	42-pounder.	32-pounder.	24-pounder.
1st class	10	160	74
2d class	7	150	31
3d class	22	104	16

Giving a percentage valuation of the classes, as follows:

	42-pounder.	32-pounder.	24-pounder.
	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>
1st class	25.64	38.64	61.16
2d class	17.95	36.23	25.62
3d class	56.41	25.13	13.22
	100.00	100.00	100.00

Those included in the 1st class are regarded as the best in the service. The guns of the 2d class are, for the present, considered doubtful, and they are reserved for further examination, while those of the 3d class should be condemned as unfit for service.

The following general conclusions are deduced from the foregoing:

1st. *The specific gravity* bears some relation to the strength and durability of the gun. Its value is, however, greatly dependent on certain conditions attending the casting; it cannot, therefore, be regarded as a sure index of the quality of the iron, although it may be useful as a secondary test.

2d. *The tensile strength* is in a direct ratio to the quality and durability of the gun; its value as a test is, therefore, of the highest importance. When a gun exhibits this property, in connection with a certain density, its durability may safely be relied on.

3d. *Character of fracture* deserves attention, and, in the absence of other means, may afford some estimate of the quality of the iron. The examination of the turned surface of a specimen is, in such cases, also useful; for, when uneven, and filled with large stellated cavities (being the beds of the crystals removed) it affords *prima facie* evidence that the iron is of a coarse, open structure, and of low strength and density.

4th. *Hydrostatic pressure*.—This test has, so far, been satisfactorily employed only in cases of extreme proof. 32-pounder No. 25 leaked, under a moderate pressure, in *front* of the trunnions, although it sustained, as before reported, a high degree of proof.

In cases, however, where these leaks or imperfections are found to the rear of the trunnions, the result might be otherwise; in such, the application of this test would detect them.

5th. As the 579 guns experimented upon at Fort Monroe are all from one foundry, the variety exhibited in the character and quality of the metal evinces the absence of a proper and systematic mode of treating the iron during the process of manufacture, or that it has been drawn from different sources, and is not of uniform quality.

G. TALCOTT,
Lieutenant-Colonel of Ordnance.

ORDNANCE OFFICE,
Washington, October 31, 1845.

[Extract from annual report of Secretary of War for 1845.—Ex. Doc. No. 2, 1st session, 29th Congress.]

A reference to the report of the officer in charge of the Ordnance Bureau will show that this important branch of the public service has received the vigilant attention of those to whom it has been committed. The appropriations placed at its control have been rigidly applied to the objects designated, and the munitions of war under its charge carefully preserved and considerably increased.

The estimates for the ensuing year do not greatly vary from those of former years. The item for arming fortifications is increased one hundred thousand dollars. Many of the forts on the seaboard and the Gulf of Mexico are so far completed as to be in readiness to receive their armament. The amount now asked for will be needed to prepare the means for arming these forts, together with those in the course of construction, and such other works as the proper defense of the country may require. The amount of public property committed to the safe-keeping of this department is estimated at nearly seventeen millions of dollars. It is mostly deposited in the two national armories, at Springfield, Mass., and Harper's Ferry, Va., and in twenty-three arsenals, situated in various parts of the United States. The proper protection of this large amount of property requires numerous edifices, which must be kept in repair. The estimates for these repairs and for needful additions are based on the opinions of the officers in charge of the property, whose situation enables them to form an accurate judgment on the subject. In the estimates accompanying the report from this bureau will be found the reasons upon which these opinions are based.

In the course of the past summer I have deemed it my duty to visit the two national armories, and am convinced, from personal inspection, that considerable expenditure is required at each for the safety of the public property there deposited, consisting not only of a large amount of materials and manufactured arms, but of expensive machinery and valuable buildings.

My predecessors have often recommended the establishment of a national foundry for cannon. Such a foundry is deemed essential, if not indispensably necessary, to improve the quality and construction of heavy ordnance. It is not in contemplation to have it so extensive as to supersede the use of private foundries; but such a foundry, devoted mainly to adopting and testing improvements, and furnishing models for the work to be done at other establishments, would be highly useful, and I concur in the views heretofore presented in favor of such establishment.

Considerable quantities of gunpowder are, under existing circumstances, necessarily stored near valuable public and private buildings and in the vicinity of populous places. The dangers justly to be apprehended from keeping this kind of property in exposed conditions have been heretofore represented to Congress, accompanied with suggestions in favor of establishing a depot for its safe-keeping at some central point, safe in its construction, and removed to a secure distance from public edifices and private dwellings. I again allude to this subject in the hope that provision may be made to carry out these suggestions.

The management of the mineral lands has been committed to the Ordnance Department. The developments of this kind of wealth during the last year, particularly in the region about Lake Superior, have given increased importance to this subject and attracted towards it an unusual degree of public attention. The present mode of opening these lands to individual enterprise appears to me to be objectionable, and necessarily leads to serious difficulties in regard to conflicting claims for locations. Further legislation on this subject is required. Measures have been taken to obtain accurate information, as well in regard to the operations of the present system as to enable the department to propose some modifications or an entire change of it. The management of a concern of this nature, already involving public and private interests of considerable magnitude, and rapidly increasing in importance, should not, in my opinion, be devolved upon a military bureau, organized with reference to appropriate duties—and those duties of a various and responsible character, requiring the vigilant and constant attention of the officers charged with the performance of them. It is proposed, as soon as the returns from the agents for the fiscal year are received and other materials collected, to submit to your consideration a full report on this subject, with suggestions of essential changes in regard to the disposition and management of this portion of the public property.

[Letter to W. D., No. 1434, 1845.]

WASHINGTON, *November 25, 1845.*

SIR: Permit me to recommend for your consideration the importance of determining by actual trial the comparative strength of cast-iron cannon, by casting two six-pounders simultaneously of the same iron; the one by the present method, with the flask imbedded in a sand pit; the other in a flask, surrounded by a grate filled with ignited coal.

A like trial was made in 1826, under my personal supervision, but owing to the neglect of the founder in not making one gun cast by the latter method, with 29 cast in usual manner, there is no positive proof of its identity and superiority, although one gun of the whole number sustained 2,000 discharges, and remains still unbroken; while all the other guns failed before sustaining one-sixth part of that number of discharges.

In the present manner of casting, the guns cool from the circumference to the center, causing the exterior to contract with much greater rapidity than the interior, and thereby preventing that uniform crystallization and homogeneity of mass which, there is reason to believe, may be effected by more uniform cooling; there is also a strong probability

that guns of greater strength may be made by cooling from the center to the circumference.

The cost of an experiment, as above recommended, will not exceed five hundred dollars, as per estimate inclosed.

I am, sir, very respectfully, your obedient servant,

GEO. BOMFORD,
Colonel of Ordnance.

Hon. W. L. MARCY,
Secretary of War.

[Inclosure:]

ESTIMATE.

2 iron six-pounders, at \$50 each.....	\$100 00
800 charges of gunpowder, 1,200 pounds, at 12½ cents.....	150 00
100 6-pounder cartridge bags, at 12½ cents.....	12 50
100 6-pounder shot, 600 pounds, at 3¼ cents.....	19 50
Iron grating for flask and extra coal.....	158 00
Contingencies.....	60 00
	<hr/> 500 00

[Indorsement.]

Approved 29th November, 1845.

W. L. MARCY.

WAR DEPARTMENT.

[Miscellaneous Letters, vol. 36, p. 478.]

ORDNANCE OFFICE,
Washington, December 18, 1845.

When the subject of the national armories was before Congress in 1842, and strong differences of opinions were exhibited in the debates as to the proper organization and government of those establishments, you took an interest in the question; and the wise conclusion at which Congress finally arrived, and the judicious law which was passed, are to be attributed in very great measure to you. It therefore gives me much satisfaction now to have the opportunity of exhibiting to you the results of the system which you established, and to show you that the good measure which you advocated has produced all the effects you anticipated. The inclosed paper is a copy of a memorial from citizens of Springfield to the War Department.

Some of its signers were in 1842 very warm opponents of the new system, in favor of which they now come forward to testify. Appended to this is a statement* showing the cost of muskets from 1839—'40, when the civil superintendents were in charge of the armories, up to the present time, by which is seen that the cost of manufacture has been reduced, under the military superintendent, from \$17.44 per musket to \$11.02, and that the United States have saved upon the 12,107 muskets fabricated in the year the sum of \$77,702.72 from the former cost at that armory; at the same time a marked improvement has been made in the quality of the arms.

I am sir, &c.,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Hon. THOMAS H. BENTON,
United States Senate.

* Omitted from this publication.

ORDNANCE OFFICE,
Washington, December 27, 1845.

SIR: On so much of the resolution of the Senate of the United States of 16th December, 1845, as relates to the condition of the armaments of the national fortifications, and to the "condition and quantity of the military supplies, and the state of the means possessed by the government for the defense of the country," so far as these supplies and means of defense come within the province of the Ordnance Department, I have the honor to report:

1st.—As to the armament of the fortifications.

The fortifications of the country, when completed, will require for their armament about 6,876 pieces of ordnance of all kinds. Of these the works already constructed will mount 3,528 pieces; those under construction 1,292 pieces; and those included in the system of fortification, but not yet commenced, 2,056 pieces.

Of the ordnance for fortifications in possession of the government, there are 2,900 pieces of suitable quality to be mounted, leaving a deficiency of 628 guns to arm the forts *constructed*. If the forts *under construction*, and which can probably be soon made ready for their armament, be included, the deficiency will amount to 1,920 guns. To these should be added the requirements for such of the projected works as may be soon got ready, or of temporary fortifications in lieu of them, estimated at 500 guns; making a total required, in addition to those on hand, of 2,420, say 2,500 pieces of ordinance, the cost of which would be about a million of dollars.

Of the carriages to mount these guns there are, at the several forts and arsenals, 1,379, leaving to be provided for arming the forts *constructed* 2,149; for these and the forts *under construction*, 3,441; and, including probable temporary fortifications, or projected works made ready for their armament, and a supply to replace those disabled in service, about 5,000 carriages. The cost of these carriages, allowing for working up the timber on hand, will be about a million and a half of dollars. To supply ammunition, at the rate of 100 rounds per gun, will require 540,000 rounds, or 4,320,000 pounds of cannon powder, and 540,000 projectiles of all kinds and calibers. Deducting the present supply (about 630,000 pounds of cannon powder and 300,000 projectiles), there will remain to be procured about 3,690,000 pounds of cannon powder and 240,000 projectiles, the cost of which would be, for powder \$554,000, for projectiles, including cartridge bags, wads, primers, &c., \$621,000, making the total for ammunition \$1,175,000. The supply of saltpeter and sulphur on hand is sufficient to make about four millions of pounds of gunpowder; but the value of these supplies has not been deducted in estimating the cost of a supply of powder, because they would probably not be used immediately, but held in reserve to meet the future contingency of a scarcity of these articles in the country.

The following statement of the armament which has been supplied to each fort on the Atlantic, Gulf, and Lake coasts will show in detail the present means of defense so far as depends on the guns in our forts. The statement includes also what is still wanted at each fort to complete its armament.

1. *Fort at the narrows of Penobscot, near Bucksport, Me.*—Total armament, when fort is complete, 143 heavy guns and 5 field pieces; has

been reported to the Ordnance Office to be ready for 48 heavy guns; no part of the armament is supplied.

2. *Old Fort Sullivan, Maine.*—Armament complete, 33 sea-coast and garrison guns and 3 field pieces; no report has been made to the Ordnance Office on the subject of its preparation to receive its armament; none supplied.

3. *Old Fort Edgecomb, Wiscasset, Me.*—Armament complete, 12 sea-coast and garrison guns; no requisition has been made on the Ordnance Office for its armament, and none has been supplied.

4. *Fort Preble, Portland, Me.*—Armament complete, 32 sea-coast and garrison guns and 6 field pieces; is reported ready for entire armament; has been supplied with 12 heavy guns and 12 carriages; yet to be supplied, 20 heavy guns and 20 carriages and 6 field guns and field carriages.

5. *Fort Scammel, Portland, Me.*—Armament complete, 22 sea-coast and garrison guns and 3 field pieces; reported ready for whole; nothing supplied.

6. *Fort Constitution, Portsmouth, N. H.*—Armament complete, 46 sea-coast and garrison guns and 6 field pieces; reported ready for whole; has been supplied with 20 heavy guns and carriages; yet required, 26 heavy guns and carriages, 6 field pieces and carriages.

7. *Fort McClary, Portsmouth, N. H.*—Armament complete, 9 sea-coast and garrison guns; reported ready for the whole; none supplied.

8. *Old Fort Pickering, at Salem, Mass.*—Armament complete, 8 sea-coast and garrison guns and 3 field pieces; no report of its readiness for armament; none supplied.

9. *Old Fort Lee, Salem.*—Armament complete, 8 sea-coast and garrison guns; no report of its readiness has been made to Ordnance Office, and no part of its armament is supplied.

10. *Old Fort, at Gloucester, Mass.*—Armament complete, 12 sea-coast and garrison guns and 3 field pieces; no report of its readiness for armament; none supplied.

11. *Old Fort Seawell, Marblehead, Mass.*—Armament complete, 22 sea-coast and garrison guns and 3 field pieces; no report of its readiness for armament; none supplied.

12. *Fort Independence, Boston Harbor, Massachusetts.*—Armament complete, 121 sea-coast and garrison guns; reported ready for whole; supplied, 70 guns and 45 carriages; yet to be supplied, 51 heavy guns and 76 carriages.

13. *Fort Warren, Boston Harbor, Massachusetts.*—Armament complete, 334 heavy guns; reported ready for 75 heavy guns; no part of the armament has been supplied.

14. *Westhead Battery, Boston Harbor, Massachusetts.*—Armament complete, 7 sea-coast and garrison guns; no report of its readiness for armament; none supplied.

15. *Southeast Battery, Boston Harbor.*—Armament complete, 7 sea-coast and garrison guns; no report of its readiness for armament; none supplied.

16. *Fort at New Bedford Harbor.*—Armament complete, 12 sea-coast and garrison guns and 2 field pieces; no report has been received at Ordnance Office of its readiness; supplied, 9 heavy guns and carriages; remaining to be supplied, 3 heavy guns and carriages and 2 field pieces and carriages.

17. *Fort Wolcott, Newport Harbor, Rhode Island.*—Armament complete, 43 sea-coast and garrison guns; no report of its readiness for armament; none supplied.

18. *Fort Green, Newport Harbor.*—Armament complete, 8 sea-coast

and garrison guns; no report of its readiness for armament; none supplied.

19. *Fort Adams, Newport Harbor, Rhode Island.*—Armament complete, 452 sea-coast and garrison guns and 12 field pieces; reported ready for 364 guns; supplied, 149 heavy guns and 99 carriages; remaining to be supplied, 303 heavy guns and 353 carriages and 12 field pieces.

20. *Fort Trumbull, near New London, Conn.*—Armament complete, 76 sea-coast and garrison guns; and 3 field pieces; reported ready for 50 guns; no part of the armament has been supplied.

21. *Fort Griswold, near New London, Conn.*—Armament complete, 79 sea-coast and garrison guns and 3 field pieces; reported ready for 22 guns; supplied, 15 guns and carriages; yet to be supplied, 64 heavy guns and carriages and 3 field pieces.

22. *Old Fort Hale, New Haven Harbor.*—Armament complete, 6 sea-coast and garrison guns; no report of its readiness for armament; none supplied.

23. *Fort Columbus, harbor of New York.*—Armament complete, 105 sea-coast and garrison guns; reported ready for the whole; supplied, 84 guns and carriages; yet required, 21 guns and carriages.

24. *South Battery, Governor's Island, New York Harbor.*—Armament complete, 14 sea-coast and garrison guns; reported ready for the whole; supplied, 5 guns and carriages; yet wanted, 9 guns and carriages.

25. *Castle Williams, Governor's Island, New York Harbor.*—Armament complete, 78 sea-coast and garrison guns; reported ready for the whole; supplied, 70 guns and carriages; yet to be supplied, 8 guns and carriages.

26. *Fort Gibson, Ellis Island, New York Harbor.*—Armament complete, 15 sea-coast and garrison guns; reported ready for the whole; supplied, 14 heavy guns and carriages; wanting, 1 gun and carriage.

27. *Fort Wood, Bedloe's Island, New York Harbor.*—Armament complete, 89 sea-coast and garrison guns; reported ready for whole; supplied, 12 heavy guns and carriages; yet required, 77 guns and carriages.

28. *Fort Lafayette, New York Harbor.*—Armament complete, 73 sea-coast and garrison guns; reported ready for whole; supplied, 73 cannon and 65 carriages; required, 8 carriages.

29. *Fort Hamilton, New York Harbor.*—Armament complete, 112 sea-coast and garrison guns and 6 field pieces; reported ready for 40 heavy pieces; supplied, 59 guns and 32 carriages; yet required, 53 pieces heavy ordnance and 80 carriages and 6 field pieces and carriages.

30. *Battery Hudson, Staten Island, New York Harbor.*—Armament complete, 50 sea-coast and garrison guns; reported ready for whole; supplied, 27 guns and carriages; yet required, 23 guns and carriages.

31. *Battery Morton, Staten Island, New York Harbor.*—Armament complete, 10 sea-coast and garrison guns; reported ready for whole; supplied with the whole.

32. *Fort Richmond, New York Harbor.*—Armament complete, 27 sea-coast and garrison guns; no report of its readiness for armament; none supplied.

33. *Fort Schuyler, New York Harbor.*—Armament complete, 312 sea-coast and garrison guns and 6 field pieces; reported ready for 134 heavy guns; no part of the armament has been supplied.

34. *Fort Mifflin, below Philadelphia.*—Armament complete, 53 sea coast and garrison guns; reported ready for the whole; supplied with 53 pieces and 37 carriages; required, 16 carriages and 16 sea-coast howitzers in place of 16 32-pounder guns.

35. *Fort McHenry, Baltimore, Md*—Armament complete, 68 sea-coast

and garrison guns; reported ready for 56 guns; supplied, 68 guns and 52 carriages; required, 16 carriages and 9 sea-coast howitzers in place of guns.

36. *Fort Madison, Annapolis, Md.*—Armament complete, 15 sea-coast and garrison guns and 3 field pieces; no report of its readiness for armament; none supplied.

37. *Fort Severn, Annapolis, Md.*—Armament complete, 11 sea-coast and garrison guns and 3 field pieces; no report of its readiness for armament; none supplied.

38. *Fort Washington, on the Potomac, below Alexandria.*—Armament complete, 77 sea-coast and garrison guns and 3 field pieces; reported ready for the whole; supplied with 30 guns and carriages; to be supplied with 47 guns and carriages and 3 field pieces and carriages.

39. *Fort Monroe, Hampton Roads, Virginia.*—Armament complete, 359 sea-coast and garrison guns and 12 field pieces; reported ready for 159 guns; supplied with 98 guns and 129 carriages; to be supplied, 261 guns, 230 carriages and 12 field pieces and field carriages.

40. *Fort Calhoun, Hampton Roads, Virginia.*—Armament complete, 224 sea-coast and garrison guns; no report of its readiness for armament; none supplied.

41. *Fort Macon, Beaufort Harbor, North Carolina.*—Armament complete, 59 sea-coast and garrison guns and 3 field pieces; reported ready for 26 guns; supplied with 7 guns and 10 carriages; yet to be supplied, 52 guns, 49 carriages, and 3 field pieces and carriages.

42. *Fort Caswell, north of the Cape Fear River, North Carolina.*—Armament complete, 84 sea-coast and garrison guns and 3 field pieces; reported ready for 64 guns; supplied with 20 guns and 12 carriages; yet to be supplied, 64 guns, 72 carriages, and 3 field pieces and carriages.

43. *Old Fort Johnson, Cape Fear River, North Carolina.*—Armament complete, 10 sea-coast and garrison guns; no report of its readiness for armament; none supplied.

44. *Castle Pinckney, Charleston Harbor, South Carolina.*—Armament complete, 21 sea-coast and garrison guns; reported ready for the whole; supplied with 20 guns and carriages; to be supplied, 1 gun and carriage.

45. *Fort Johnson, Charleston Harbor, South Carolina.*—Armament complete, 9 sea coast and garrison guns; no report of its readiness for armament; none supplied.

46. *Fort Moultrie, Charleston Harbor, South Carolina.*—Armament complete, 48 sea-coast and garrison guns and 6 field pieces; supplied with 35 guns and carriages; yet to be supplied, 13 guns and carriages and 6 field pieces and carriages.

47. *Battery Beaufort, South Carolina.*—Armament complete, 6 sea-coast and garrison guns; no report of its readiness for armament; none supplied.

48. *Fort Pulaski, Savannah River, Georgia.*—Armament complete, 150 sea-coast and garrison guns; reported ready for 113 guns; supplied with 20 guns and carriages; yet to be supplied with 130 guns and carriages.

49. *Fort Marion, Saint Augustine, Florida.*—Armament complete, 26 sea-coast and garrison guns; reported ready for the whole; none supplied.

50. *Fort Pickens, Pensacola Harbor, Florida.*—Armament complete, 206 sea-coast and garrison guns and 6 field-pieces; reported ready for the whole; supplied with 118 guns and 88 carriages; yet to be supplied, 88 guns, 118 carriages, and 6 field pieces.

51. *Fort McKee, Pensacola Harbor, Florida.*—Armament complete 122 sea-coast and garrison guns and 3 field pieces; reported ready for the whole; supplied with 120 heavy guns and 88 carriages; yet to be supplied, 2 heavy guns and 34 carriages and 3 field pieces and carriages.

52. *Fort Barrancas, Pensacola Harbor, Florida.*—Armament complete, 46 sea-coast and garrison guns and 3 field pieces; reported ready for the whole; supplied with 35 heavy guns and 19 carriages; yet to be supplied, 11 heavy guns and 27 carriages and 3 field pieces and carriages.

53. *Fort Morgan, Bay of Mobile, Alabama.*—Armament complete, 126 sea-coast and garrison guns and 6 field pieces; reported ready for the whole; supplied with 79 heavy guns and 13 carriages; yet to be supplied, 47 heavy guns, 113 carriages, and 6 field pieces and carriages.

54. *Fort Pike, Louisiana.*—Armament complete, 49 sea-coast and garrison guns; reported ready for the whole; supplied 28 heavy guns and 29 carriages; yet to be supplied, 21 guns and 20 carriages.

55. *Fort Wood, Louisiana.*—Armament complete, 48 sea-coast and garrison guns and 3 field pieces; reported ready for the whole; supplied with 23 guns and 24 carriages; yet to be supplied, 25 guns, 24 carriages, and 3 field pieces and carriages.

56. *Battery Bienvenu, Louisiana.*—Armament complete, 15 sea-coast and garrison guns; reported ready for the whole; none supplied.

57. *Tower Dupies, Louisiana.*—Armament complete, 13 sea-coast and garrison guns; reported ready for the whole; none supplied.

58. *Fort Saint Philip, Louisiana.*—Armament complete, 28 sea-coast and garrison guns; reported ready for the whole; none supplied.

59. *Fort Jackson.*—Armament complete, 82 sea-coast and garrison guns; reported ready for the whole; supplied with 42 guns and 14 carriages; yet to be supplied, 40 guns and 68 carriages.

60. *Fort near Detroit, Mich.*—Reported ready for 31 guns; none supplied yet.

61. *Fort Niagara, New York.*—Armament complete, 24 sea-coast and garrison guns and 12 field pieces; reported ready for the whole; supplied with 14 guns and 12 carriages; yet to be supplied, 10 guns, 12 carriages, and 12 field pieces and carriages.

62. *Redoubt at Black Rock, New York.*—Reported ready for 32 guns; none supplied yet.

63. *Fort Ontario.*—Armament complete, 17 sea-coast and garrison guns; supplied with 17 guns and carriages.

From this statement it appears that the armament for forts at present supplied is distributed along the coast at the following points, viz:

	Guns.	Carriages.		Guns.	Carriages.
Portland, Me.....	12	12	Hampton Roads.....	98	129
Portsmouth, N. H.....	20	20	Beaufort Harbor, North Carolina.....	7	10
Boston Harbor.....	70	45	Mouth Cape Fear, North Carolina.....	20	12
New Bedford Harbor.....	9	9	Charleston Harbor, South Carolina..	55	55
Newport Harbor.....	149	99	Savannah River.....	20	20
New London Harbor.....	15	15	Pensacola Harbor.....	273	195
New York Harbor and approaches...	354	319	Mobile Bay.....	79	13
Philadelphia.....	53	37	Approaches to New Orleans.....	93	67
Baltimore.....	68	52	Lake coast.....	31	29
Potomac River.....	30	30			

2d.—As to the condition and quantity of the military supplies furnished through the Ordnance Department.

The supply of gun-carriage timber on hand and under contract to be delivered is sufficient to make 1,857 carriages. It has already been taken into consideration in estimating for the carriages wanted.

The saltpeter, sulphur, and cannon powder on hand have also been stated in connection with the armament of fortifications. Besides, there are on deposit in the arsenals and armories 226,971 pounds of musket and 106,706 pounds of rifle powder, 6,452,533 cartridges for small arms, 628,128 muskets, 30,336 rifles, 42,626 pistols and carbines, all good and serviceable; also 361 field carriages and 369 field guns, and about 27,000 sets of infantry, 8,000 of rifle, and 5,000 of cavalry accouterments.

In addition to these supplies there would be required to procure accouterments for 50,000 infantry, 20,000 riflemen, and 10,000 cavalry, \$264,000; to procure 20 batteries of field artillery, \$190,680; for the purchase of gunpowder for small arms, field artillery, and general purposes, independently of what is required in the forts, say 250,000 pounds of cannon and 250,000 pounds of musket and rifle powder, \$90,000; add to these the probable cost of flannel cartridge bags for field guns, musket-cartridge paper, and making cartridges, \$35,000; and for the purchase of projectiles for field artillery \$25,000.

To recapitulate, there will be required to provide arms, ammunition, and accouterments to supply the forts, to arm and equip the number of men above estimated, and to provide field artillery in addition to the means on hand:

1. For ordnance for fortifications.....	\$1,000,000
2. For carriages for fortifications	1,500,000
3. For ammunition for fortifications.....	1,175,000
4. For accouterments for infantry, rifle, and cavalry.....	264,000
5. For field artillery.....	190,680
6. For ammunition and powder for general purposes.....	150,000
Total.....	4,279,680

Although the foregoing estimate exhibits the probable amount required for the objects specified, the whole would not be wanted for immediate expenditure, but at least \$2,000,000 should be made available at once.

As the expenditures of this department for armament of fortifications will have to be made ultimately, any amount appropriated therefor will only be hastening the completion of this object, and without loss, the materials procured therefor being generally of an imperishable nature.

It will only be converting money into its equivalent in property of a kind which must be possessed by the government, and which it is very difficult, if not impossible, to procure in sufficient quantity and of proper quality on an emergency.

Respectfully, &c.,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

HON. W. L. MARCY,
Secretary of War.

ORDNANCE OFFICE,
Washington, January 9, 1846.

SIR: I have received your letter of the 6th instant, making inquiries respecting the establishment of a national foundry. It affords me pleasure to communicate to you my views on the subject. I proceed to answer your several inquiries in the order in which you present them.

I. *Whether the cannon will be improved in quality by means of a national foundry.*—Improvement in the quality of the cannon is the main end we propose from a national foundry, and I have no doubt whatever that such an establishment is the best and the only reliable means of securing that degree of skill in the fabrication of cannon which is necessary to furnish to the military service such guns as we ought to have in war.

Valuable improvements have been made in the operations of the private foundries, and the guns we have recently procured are of an improved quality. Still much remains to be done to secure the highest degree of strength from the casting which the metal is capable of producing, and to insure this strength, or a suitable strength, with a reasonable and reliable uniformity. Now, we procure occasionally a very strong gun and then a weak gun, and it is evident that such a degree of skill in the art of the founder may be attained, and ought to be introduced into the business of cannon-making, as will produce good results regularly, uniformly, and with certainty.

The necessity of devising means to improve the quality of our iron guns will appear to you very clearly from a statement of the character of the cannon we have heretofore been able to procure. My annual report of this year, which has been presented to Congress, states the measures which are now in progress to test the heavy ordnance at the various forts. The report of the officer engaged in this scrutiny shows that of the heavy guns at Fort Monroe, Hampton Roads, 574 in number, the quality is as follows:

	42-pounder guns.	32-pounders.	24-pounders.
Good.....	10	160	74
Doubtful.....	7	150	31
Bad—unfit for use.....	22	104	16

Making a percentage as follows, of all calibers: Good, 42 per cent.; bad or doubtful, 58 per cent.; and this is a fortress of the first class and the highest importance.

I advert in this connection to the lamentable fact, officially ascertained and brought to the attention of Congress in a report from the Secretary of the Navy, that in our last war with Great Britain more of our men were killed aboard our ships of war by the bursting of our own guns than by the fire of the enemy.

Another report from the officer above referred to, received at this office since my annual report was submitted, states the result of trials made upon heavy guns in the fortifications of New York Harbor. These last guns were cast at a different foundry from those at Fort Monroe, and, indeed, at one of our oldest and best conducted private establishments, and where as much skill and care is exerted as can be expected from private founders under such circumstances.

The examination embraces 571 pieces heavy ordnance, and the officer classifies them as follows:

Of those cast between the years 1826 and 1834, 65 per cent. exhibit a strength of metal which may be relied on in service, while 35 per cent. are doubtful and unsafe. Of the cannon cast between 1834 and 1840, the officer considers that, of the 24 and 42-pounders, *none* are good and safe, 37 per cent. are doubtful, and 63 per cent. certainly unfit for use. Of the 8-inch sea-coast howitzers cast in that period, he considers 31 per cent. good, 63 per cent. doubtful, and 6 per cent. unfit for use. Since 1840, he finds all cast at that foundry good and serviceable.

This uncertainty and irregularity, which in the present state of the art attends the operations of private founders, is one of the essential reasons for the establishment of a national foundry.

I do not propose to supersede and dispense with these private establishments. On the contrary, they would derive benefit from the national work, which would introduce new and improved modes into their operations. We should only demand of them to receive the prices which the experience of the national foundry would show to be fair remunerating prices for their work, and to conform to those processes in the fabrication which should be proved at the foundry to be the best. Of all our improvements and operations, they would have the full benefit.

To what extent their operations would be improved, and the interest of the government promoted in the quality of the cannon, by the aid of a national foundry may be judged from the fact I have before stated in regard to the private foundry last adverted to, the guns of which have just been tested; of guns cast since 1840, the officer finds none bad; while of those made just before, he reports none good. The bad guns were the consequence of the use of hot blast iron. Such are the errors to which founders are liable. But before this bad practice was introduced, we find 35 per cent. of their guns doubtful and unsafe. Since 1840, under the revised regulations of this department (and which have since been sanctioned by Congress, in the part to which it was necessary to procure their sanction, though warmly opposed by influential members), we have had officers of this department, aided by a scientific gentleman skillful in this business, who was formerly and for a long time an officer of ordnance, residing at these foundries, and superintending and witnessing every part of their operations, with authority to object to any proceeding they may deem injurious to the quality of the cannon. Under this system we have made important progress in the road of improvement. A national foundry will afford the best and safest, if not the only reliable, means to continue our progress and secure the end we have in view.

Its operations we could entirely and effectually control and direct to the object of improving the fabrication of cannon.

The object of a national foundry would be chiefly as follows:

1. To establish a standard of quality in the material and proof in the fabrication of ordnance for the purpose of exercising the necessary control over private founders in these respects, and to regulate the prices of their work.

2. To afford the means of making suitable experiments in establishing the best patterns for ordnance for the land or sea service.

3. To compare and test the qualities of various kinds of iron and other materials used in the fabrication of cannon, and the results of various processes. Under this head would be embraced the trial of different kinds of iron ore and of different kinds of fuel, &c., used in reducing them; the effect of mixing ores and iron; experiments in making iron cannon from certain ores, with metal from the first fusion, as practiced

successfully in Sweden; also a comparison of different alloys, and modes of molding and casting, in the fabrication of brass ordnance.

II. *Your second inquiry is on the point of economy.*—The argument of economy applies here as to all public works. Properly conducted, they secure economy as well as a better quality in the manufacture. We should, beyond a doubt, derive from the foundry the same benefits as are experienced from the armories, in both the standard of the work received from private contractors and the prices to be paid them.

III. The *cost* of the foundry on the limited scale proposed would be \$160,000, independent of the cost of the site.

IV. The *annual expense of its operations*, or the amount of expenditures at the foundry, would depend upon the sum allotted to it, out of the annual appropriation for the armament of the fortifications. Forty thousand dollars a year, after the works are put in operation, could be advantageously used.

V. In regard to the *number of guns required annually*. My last annual report states the number now required of heavy guns, to complete the armament of the forts, to be 3,976. This number might be made in a short time, if the necessities of the country should demand such a course; or they may be gradually provided during a series of ten or twelve years.

To supply the heavy guns of all calibers, and their carriages, required to complete the entire fortification system, in addition to the stock now in possession of the government, will require an expenditure of \$3,500,000. The annual appropriations for this object, during the last ten years, have averaged \$140,000, the highest being \$200,000. At this rate we shall take twenty-five years. This department hopes however to obtain larger and more adequate appropriations than have heretofore been made for this object.

I am, sir, &c.,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Hon. A. YELL.

Military Committee, House of Representatives.

[Miscellaneous Letters, vol. 36, p. 509.]

ORDNANCE OFFICE,
Washington, January 14, 1846.

SIR: Your letter of the 5th instant has been received. In reference to the several points on which you ask for information I have to state in reply that it would be more economical and convenient to have all such repairs as it may be in the power of a company to effect done at its station, instead of sending the arms to an arsenal for the purpose; and that this department will always provide such small parts as may be necessary on the requisition of company commanders. In making these requisitions the dates and places of manufacture of the muskets should be stated. No instructions as to the theory of infantry target practice have been issued from this office. In regard to this subject it may be stated that the point blank range of our musket (drawing the line of sight from the top of the tang to the base of the sight) is 150 yards; but this distance would vary according as the line of sight may deviate from this position. The soldier should understand this and be taught to regulate his sighting and to elevate or depress his gun according to dis-

tance. The most common error is in aiming too high. The best distances for habitual practice are thought to be 100, 150, and 200 yards, to be increased only after the men have become familiar with firing at these distances.

The annual expenditure of musket cartridges for practice firing and drills has not been definitely regulated. It has heretofore been left much to the discretion of commanding officers of regiments and companies, any undue expenditures being noted and inquired into on examination of the returns made to this office. It would be better to have a fixed allowance for these purposes, which, it is thought, should be for the present organization of infantry companies, about 1,500 ball and ball and buck-shot cartridges (say one-third of the latter), 2,000 blank cartridges, and 175 flints or 4,500 percussion caps in lieu for each.

As regards the allowance to infantry companies for instruction in the exercise and management of field artillery, it is thought that sufficient instruction may be obtained by the drills and necessary salute firing without the use of other cartridges. The General Order No. 21, of 1842, makes no provision for target practice by infantry companies, nor is such provision considered essential to carry out the requirements of the General Regulations.

Your requisitions, based on the foregoing proposed allowances, will be duly attended to at this office.

Respectfully, &c.,

Capt. C. A. WAITE,
Plattsburg Barracks.

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

[Letters to W. D., vol. 8, p. 400.]

ORDNANCE OFFICE,
Washington, January 16, 1846.

SIR: On the accounts (inclosed in the letter of the Hon. Isaac E. Morse of the 12th inst. referred to this office) for injuries done to the batteries of the State of Louisiana while in the service of the United States, I have the honor to report that the damages thus sustained should be made good by the United States by the payment of a sufficient sum to put the batteries in as good condition as they were when taken into the service of the government. But as the armament of the Louisiana troops is not the property of the United States, this case does not come within the regularly authorized expenditures of the Ordnance Department. It is understood that there is now a bill before Congress for the payment of these volunteers, and it is thought that this charge for damages incurred in the United States service should be included in that bill.

Mr. Morse's letter and its inclosures are herewith returned.

Respectfully, &c.

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Hon. W. L. MARCY,
Secretary of War.

[Letters to W. D., vol. 8, p. 403.]

ORDNANCE OFFICE,
Washington, January 23, 1846.

SIR: The letter of the Hon. Jacob Brinkerhoff of the 21st inst., inquiring, on the part of the Military Committee of the House, the opinion of the War Department respecting the value of Mr Ketchum's grenade, and the action which it is desired may be taken by the House in regard thereto, has been duly considered, and I have the honor to report that this department does not consider Mr. Ketchum's grenade a weapon necessary for service in our Army.

In former times the hand grenade was used as an arm for a portion of the infantry.

It is entirely gone out of use for that purpose. Grenadiers are now armed with the musket, and in some services (as the French) with a saber also.

They are picked companies of stout men, usually placed on the flanks of the battalions, and being generally chosen to form the storming party in the attack of fortified places, they retain the name of grenadiers from the former use of those troops, and the weapon with which they were then armed. The superiority of the musket has caused it to supersede the hand grenade as an arm for troops. The grenade may, however, be still useful for the attack and defense of places—to throw in numbers into the ditches and passages where the troops are collected.

For this purpose proper provision is made in our service. The six-pounder shell is used as the hand grenade, and shells of any caliber as rampart grenades.

The peculiarity of Mr. Ketchum's grenade is in its explosion by percussion. Experiments were made by this department in 1844 to test the success of the contrivance and its fitness for our use. The results were not such as to lead to its adoption.

I can recommend no further action on the subject to the honorable committee of the House.

The letter of Mr. Brinkerhoff is herewith returned.

I have the honor to be, &c.,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Hon. WM. L. MARCY,
Secretary of War.

[Letters to W. D., vol. 8, p. 408.]

ORDNANCE OFFICE,
Washington, 11th February, 1846.

SIR: I have received communications from commanding officers of ordnance posts, representing the claims of soldiers of ordnance under their command, who have been wounded and disabled in the line of their duty, to the benefits of the pension laws.

I have frequently laid this subject before the War Department, and your predecessors have recommended it to the justice of Congress. It is my duty again to submit it, and to solicit for it your favorable consideration and recommendation to Congress.

It is considered at the Pension Office that the enlisted men of ordnance are not embraced in the pension laws, as all other enlisted men of the

Army are, and all engineer soldiers and cadets. The ordnance men are subject to the Rules and Articles of War, are drilled, disciplined, and armed like other soldiers, are enlisted in like form, and render military service under the same laws and obligations. Yet, if an enlisted man of ordnance is killed in firing cannon (as some have been), or in the dangerous works of the laboratory (as others have been), or by an enemy in battle, his case is not within the pension laws provided for every other part of the Army.

There cannot be a good reason for making such distinction between the different corps of the Army. There can be no doubt that the omission of the Ordnance Corps from the benefits of the pension laws was wholly inadvertent, and not designed by Congress.

It is supposed that an officer of ordnance would now be allowed the benefit of those laws, though no case has occurred; but to remove any doubt on the subject, I respectfully recommend an act providing for both officers and men.

I am, sir, &c.,

Hon. W. L. MARCY,
Secretary of War.

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

[Letters to W. D., vol. 8, p. 409.]

ORDNANCE OFFICE,
Washington, February 12, 1846.

SIR: In reply to the letter of the Hon. Mr. Haralson of this date, presenting certain inquiries on the part of the Military Committee of the House of Representatives, I submit the inclosed statement, which conveys all the information called for.

The letter of Mr. Haralson is herewith returned.

I am, sir, &c.,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Ordnance and small-arms at the arsenals and armories and at the forts, and distributed to the militia under the law of 1808.

	Heavy ordnance.	Field cannon.
At the arsenals, with carriages.....	356	361
At the arsenals, without carriages.....	1,068	100
At the forts, mounted.....	1,162	129
At the forts, not mounted.....	237	365
Total mounted.....	1,518	490
Total not mounted.....	1,305	465

The above heavy guns and 150 of the field cannon are of the patterns now adopted in service. There are besides of old pattern 1,314, of which the whole or the greater part may be used, should it become necessary, before new guns are procured.

There are on hand at the arsenals and armories—

Muskets	601,988
Rifles and carbines	39,564
Pistols	32,749
Sabers and swords	15,359

In possession of the troops and in Texas—

Muskets	22,000
Rifles	4,000

Field artillery and small-arms distributed to the militia under the law of 1808—

Cannon	908
Carriages	959
Muskets	282,536
Rifles and carbines	49,936
Pistols	62,643
Sabers and swords	45,015

The national armories will be capable of manufacturing about 28,000 small-arms annually. The private foundries now in employment of the government can fabricate about 1,200 pieces of ordnance annually, and their operations might be so extended as to furnish 1,800 annually.

GEO. TALCOTT,

Lieutenant-Colonel of Ordnance.

Hon. WM. L. MARCY,
Secretary of War.

[Letter to W. D., No. 115, 1846.]

ORDNANCE OFFICE,
Washington, February 26, 1846.

SIR: A meeting of the Ordnance Board (as provided in article 9, Ordnance Regulations) is now required to take into consideration the following subjects, of which it is important to have the details established:

- 1st. The mode of altering flint-lock muskets to percussion.
- 2d. The tumblers and sears of the percussion lock.
- 3d. Some details of iron 42 and 32 pounder, casemate carriages.
- 4th. Suggestions of officers at the foundries of new regulations in that part of the ordnance service.
- 5th. Fuses and implements for 8 and 10 inch Columbiads; fuses for 12 and 24 pounder shells.

6th. Treadwell's guns of wrought iron and steel for field service.

7th. Verifying instruments used in inspection of cannon.

8th. Some details in garrison carriages to establish a uniform rule for the several arsenals of construction in those details, and such other matter as may be brought before the board. In explanation of the objects and business of this board, I take occasion to refer to article 9 of the regulations where it is provided for, and its duties defined.

These duties are stated somewhat more specifically in the orders from the War Department to the board, viz: "To revise the regulations of the Ordnance Department; to revise and arrange a uniform system of artillery, and all other supplies furnished for the military service by the Ordnance Department; to prepare drawings, tables, and descriptions, in detail, of all ordnance and ordnance stores."

The fruit of the previous labors of this board are the Ordnance Regu-

tions now in force and our system of ordnance as exhibited in the manual, which, having received the sanction of the War Department, have been adopted and published.

For the transaction of business as above stated, which requires the consideration of the board, I request authority to convene the members on the 10th of next month.

I am, sir, very respectfully, your obedient servant,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Hon. W. L. MARCY,
Secretary of War.

NOTE.—The Ordnance Board, constituted in 1839, consisted of Lieutenant-Colonel Talcott, Major Baker, Captain Mordecai, and Captain Huger, to whom were added in December, 1840, Captain, now Major, Symington. The board as thus formed has continued till the present time.

G. T.

Approved:
FEBRUARY 26, 1846.

[Indorsement.]

W. L. MARCY.

[Miscellaneous Letters, vol. 37, p. 71.]

ORDNANCE OFFICE,
Washington, March 5, 1846.

SIR: The question has been brought before this office whether the enlisted men of ordnance are entitled to the bounty for re-enlistment provided by *section 29* of the act *July 5, 1838*. I am advised at the office of the Adjutant-General of the Army to submit the case for your decision.

I refer to the act and section above cited (Cross, p. 266) and to section 11 (last clause of the section), act February 8, 1815 (Cross, p. 182). I find that November 17, 1843, you decided this point in favor of ordnance sergeants, on reference to you by the Adjutant-General, although he reported his opinion against them. He makes his objection on the words "*re-enlist into his company or regiment*," and, therefore, re-enlistments there are not provided for. I cannot, however, doubt the correctness of the decision you then made and which is the rule of the service now. The words "*company or regiment*" are words of restriction, limiting the soldier to his regiment. He has his opportunity to change his company and company officers, but not to go and enlist in any part of the Army where he pleases. It is a bounty to re-enlistments to secure experienced men where they are wanted. If the soldier enlists again where he was before the law is satisfied. In this sense the Ordnance Corps is the regiment. So these words always have been interpreted, and necessarily must be, in applying the rules and articles of war to the Ordnance Corps, to which the corps is made subject. (See articles 12, 13, 16, 19, 22, 27, 33, 47, 48, &c., Cross, p. 109, 115.)

These references seem conclusive and unanswerable. Moreover, "*regiment*" or "*corps*" are used as convertible terms in article 66, and such was the decision of the War Department on the question of brevet rank.

The Adjutant-General says in the case of ordnance sergeants that their pay is better than that of other sergeants; therefore the bounty is less necessary in their case to procure re-enlistments. The same may be

said of the pay of ordnance soldiers compared with other soldiers, and the same argument drawn from it. It is answered that the pay of all sergeants is better than that of privates. Yet sergeants get the bounty equally with privates. It is sufficient that the law allows it to them by its express terms. Difference of pay is for another reason altogether; pay is arranged according to the grade of duties.

The bounty is necessary to encourage re-enlistments of ordnance men. The policy of the law is more needed in their case than in any other class of enlisted men.

From their service at the arsenals they become experienced in the mechanical and other labor practiced there. They become more useful from the skill thus acquired, and can get employment as hired laborers and mechanics at better wages if they refuse to enlist. There is, therefore, a peculiar advantage in holding out to them the bounty as an inducement to re-enlist.

The act of February, 1815, seems to warrant (in connection with the act of 1838) this bounty. If it shall be so decided it will be of benefit to the ordnance service. I rely on the decision in favor of the sergeants.

I am, sir, &c.,

GEO. TALCOTT,

Lieutenant-Colonel of Ordnance.

A. K. PARRIS, Esq.,

Second Comptroller of the Treasury.

[Letters to W. D., vol. 8, p. 419.]

ORDNANCE OFFICE,

Washington, March 13, 1846.

SIR: Along with the confidential statement of our means for defense, the guns now mounted in the forts and batteries and the arms and ordnance stores in the several arsenals, I respectfully present, for the information of the President, a copy of the "Ordnance Regulations," the "Ordnance Manual," "Experiments on Gun-powder," and drawings of "Artillery for the Land Service," from which it will be seen that the patterns, forms, and dimensions, with the mode of fabrication, proof, and inspection of arms, ordnance, and ordnance stores have been established, whereby everything required in this department can be readily provided according to the means afforded by the appropriations.

I am, sir, &c.,

GEO. TALCOTT,

Lieutenant-Colonel of Ordnance.

Hon. W. L. MARCY,

Secretary of War.

[Letters to W. D., vol. 9, p. 1.]

ORDNANCE OFFICE,

Washington, March 27, 1846.

SIR: On the subject of the pay and allowances of quarters to inspectors at the United States armories and of contract arms, referred to in the letters of some of those inspectors of the 10th December, 1845, and 18th March, 1846, I have to report:

That the pay of inspectors at the armories is fixed by the second sec-

tion of the act of 23d August, 1842, at \$800 per annum, without any "emoluments of any kind, or any compensation or commutation beyond their stipulated pay in money, except quarters actually provided for and occupied by" them.

The pay and allowances of contract inspectors were, previous to this law, higher but have been since the same as those of inspectors at the armories.

At Harper's Ferry armory there are public quarters enough for all the inspectors, and are all provided accordingly; but at the Springfield armory this is not the case. The inspectors there are provided with quarters so far as public buildings, properly so disposable, will allow; but as there are not enough for all of them, some are cut off from this allowance, and the compensation is thus rendered unequal.

This subject was brought to the notice of Mr. Wilkins when he was Secretary of War, and he decided on the 24th February, 1845, that inspectors should be allowed to occupy public quarters rent free, and that where there were no public quarters properly assignable to them, houses might be rented for them, the rent not to exceed sixty dollars a year; but in no case could they be allowed commutation of money in lieu of house rent. It is understood that this decision is inoperative, on account of the impossibility of renting suitable quarters for the sum stated. It is thought that the law does not prohibit the renting of quarters for the inspectors, and that the inequality of compensation, which certainly bears hard on some of them, might be remedied by authorizing the payment of a larger sum for the rent, say not to exceed \$100 per annum. If in your opinion the law does not authorize such a decision, then the only way to remove this inequality of compensation amongst the inspectors, is to ask additional legislation for the purpose.

The letters of the inspectors are returned herewith.

Respectfully, &c.,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Hon. W. L. MARCY,
Secretary of War.

[Letters to W. D., vol. 9, p. 3.]

ORDNANCE OFFICE,
Washington, March 30, 1846.

SIR: Concerning the re-enlistment of Sergeant John Hamm, referred to in the letter of the Hon. M. L. Martin of the 26th inst., I have to report that this department knows of no objection thereto, provided there is a post where his services as ordnance sergeant are required. There is no garrison at Fort Howard, and the ordnance property there is, and has been for several years, in charge of the agent of the Quartermaster's Department having charge of the post, and the requisite returns thereof to this department have been made by him. It is, therefore, not thought that an ordnance sergeant is wanted there.

Appointments and re-enlistments of ordnance sergeants are directed through the Adjutant-General's Office, and in accordance with the regulation of the War Department of the 1st December, 1842, it being customary to consult with this department in relation to the fitness of each person for the situation, before his appointment or re-enlistment. It is

probably known at that office whether there is a post without an ordnance sergeant where Sergeant Hamm's services may be wanted.

Mr. Martin's letter and its inclosure are returned herewith.

Respectfully, &c.,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Hon. W. L. MARCY,
Secretary of War.

[Ex. 3. 15.]

ORDNANCE OFFICE,
Washington, April 7, 1846.

SIR: I have the honor to submit an abstract of the proceedings of the ordnance board recently convened in this city, and respectfully suggest that the several recommendations of the board be approved.

I am, sir, very respectfully, your obedient servant,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Hon. W. L. MARCY,
Secretary of War.

Abstract of the proceedings of the ordnance board which convened on the 10th of March and adjourned on the 1st of April, 1846.

IMPLEMENTS FOR 10 AND 8 INCH COLUMBIADS.

Until more complete arrangements are made, it is agreed that the following implements will be issued with the 10 and 8 inch columbiad carriages:

1 woolen sponge	} to each gun	{ Diameter to correspond with diameter of chamber.
1 rammer		

1 sponge (woolen) to suit the caliber of the bore to every three guns, if the battery contains as many; if not, one bore-sponge to the battery.

SMALL ARMS.

1. *Altering flint-lock to percussion.*—The seat of the cone to be upset a little, and the cone inserted in the barrel in a plane parallel to the plane of sight.

The hole for the cone will not enter the bore by about 0.1 inch, the length of the screw part of it being shortened by one thread, and an opening made into the bore from the bottom of the cone-seat.

The musket altered at Harper's Ferry Armory and presented to the board by Major Symington (which has been fired 300 rounds by direction of the board) to serve as a model; and Major Symington to furnish the necessary description and dimensions.

2. *Allowance of variation.*—The allowance of variation in bore of muskets and other fire-arms, which has been heretofore fixed at 0.015 inch, to be reduced to 0.01 inch.

3. *Support lengthened.*—From the trials made at Harper's Ferry Armory, it is decided that the comb of the hammer be lengthened 0.2 inch, as it allows the arm to be carried more conveniently at a support.

4. *The back sight applied to the tang.*—Only one method of applying the sight to the tang was presented by Major Symington, which does

not appear to the board as well suited. They request that further trial be made, at the armories, to apply a back sight to the tang. Examined a slight alteration required to the heel of tumbler and countersink in the face of the hammer, as pointed out by the superintendents of the armories, which is agreed to by the board. The heel of the tumbler is shortened a little, and the countersink made not so deep.

INSPECTION OF CANNON.

A communication from Major Baker to the Ordnance Office, dated March 21, 1846, suggesting alterations in the regulations for inspection of cannon, was considered; and the board agree that it would be advantageous to have the measurements of the guns at the foundries made by the attending officer, for the reasons stated by Major Baker, and recommend that the regulation be altered accordingly.

BATTERY WAGONS.

Major Baker proposed a slight change in the battery wagon, which is approved by the board, viz: The cover strap and its stud, and the corresponding stud on the other side of the body, is moved 1.5 inch toward the front end.

CARTRIDGES AND WADS FOR CANNON.

The board recommend that the diminution in the diameter of the cartridge for the sea-coast and garrison cannon, recommended by Captain Mordecai in his report of "Experiments on Gunpowder," p. 326, be adopted for service.

The board also adopt his recommendation to abolish the use of heavy wads, and that light grommets or hay wads should be used over the shot only when the gun is laid level or depressed. (See p. 328, same work.)

WROUGHT IRON OR TREADWELL'S GUNS.

The subject of wrought-iron guns for field service, as manufactured by Mr. Treadwell, in his peculiar method, having been brought to the consideration of the board, it was determined that, as guns of less weight than those of present field batteries and of equal caliber may be highly useful in service, and being satisfied from trials made with Mr. Treadwell's wrought-iron and steel guns that that peculiar means of construction offers means of accomplishing the object desired, the board recommend that such number of batteries of 12 and 6 pounder guns and 24 and 12 pounder howitzers as the department may deem the service to require should be procured of Mr. Treadwell's manufacture and retained in the arsenals for future service; the guns to be of the same length as the bronze guns, and their weight to equal about 100 pounds to each pound of shot; the howitzers to be nearly of equal weight with the guns they are used with in battery, so as to be mounted on the carriages now used for bronze guns and howitzers of the same caliber.

[Indorsements.]

Respectfully submitted to the Secretary of War for his sanction.
For the board:

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Approved March 12, 1847.

W. L. MARCY.

[Letters to Ordnance Officers, vol. 7, p. 442.]

ORDNANCE OFFICE,
Washington, April 7, 1846.

SIR: It is the desire of this office to afford the Navy Department such aid in testing the quality of iron used for Navy cannon at the several foundries as may be done without in any material degree interfering with our own operations or causing us any expense. The machines used for the above purpose must of course be managed by our own officers, at the same time affording to the officers of the Navy assigned to duty at the foundries an opportunity to become acquainted with the modes of proceeding in all particulars. To carry out the views expressed above, the matter is confided entirely to your discretion, and you will take such measures as you may deem proper to effect the object in view.

Respectfully, &c.,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Maj. W. WADE,
Boston, Mass.

[Letters to W. D., vol. 9. p. 7.]

ORDNANCE OFFICE,
Washington, April 22, 1846.

SIR: On the subject of Mr. Bates's claim, referred to this office with the letter of the Hon. George Ashmun relative thereto, of the 21st instant, I have to report:

Mr. Bates was one of the persons selected to inspect, under Lieutenant Hagner, of the Ordnance Corps, all the muskets at the United States arsenals and depots of certain dates of manufacture. He was at that time, July 8, 1842, an inspector of contract arms, stationed at Springfield Armory. Such inspectors then received \$3.25 per day and eight cents per mile for traveling allowance; and Mr. Bates was informed by the letter from this office, notifying him of his selection for the service, that his compensation during the time he might be on this service would be the same as that received by inspectors of contract arms. He accordingly received \$3.25 per day and eight cents per mile for traveling allowance until May 8, 1843. On October 1, 1842, the compensation of inspectors at armories was fixed by the second section of the act of August 23, 1842, at \$300 per annum, and quarters actually provided for and occupied by them. The then Secretary of War construed this act as applicable to inspectors of contract arms, as well as those of arms at the national armories, and the higher rate of compensation previously given to the former was cut off.

Mr. Bates and the other inspector employed on the same service complained of this reduction, and represented their increased expenses in consequence of the peculiar duty on which they were employed. The matter was submitted to the Secretary of War, Hon. J. M. Porter, whose decision thereon, dated 6th May, 1843, is inclosed herewith. Mr. Bates, since the 8th May, 1843, up to the completion of the service, has been paid, in accordance with this decision, at the rate of \$800 per annum, together with the "actual necessary expenses incident to this service, including those of travel." He now claims the difference between what he has received and the amount which a per diem allowance of \$3.25 for the whole time of his employment would give him.

The allowance or disallowance of this claim would seem to depend on the construction that may be given to the terms used in the letter notifying Mr. Bates of his selection for the service, viz, whether a specific sum was designated or intended, or whether it was contingent on the compensation that other inspectors of contract arms might receive during the time he might be employed in this service.

Mr. Ashmun's letter with its inclosures is herewith returned.

Respectfully, &c.,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Hon. W. L. MARCY,
Secretary of War.

[Miscellaneous Letters, vol. 37, p. 132.]

ORDNANCE OFFICE,
Washington, May 4, 1846.

SIR: In reply to your letter of 28th ultimo, I have to say that the office of military storekeeper, like all others accessible to persons in civil life, has been, and will doubtless continue to be, filled on political considerations; and although it would afford me pleasure to do all in my power to favor the views of a military friend, I could hardly advise you to become an applicant under present circumstances.

I am, sir, &c.,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Capt. H. DAY,
Detroit, Michigan.

[Letters to W. D., vol. 9, p. 10.]

ORDNANCE OFFICE,
Washington, May 11, 1846.

SIR: It has been my duty on several occasions heretofore to bring to the consideration of your predecessors in the War Department the expediency of an increase of the Ordnance Corps. The reports which have recently been received from the ordnance officers in Texas, showing the absolute necessity of a suitable force of enlisted men of ordnance for that service, induces me at this time again to acquit myself of my duty in this matter by submitting it to the War Department.

The law now provides 250 men to be enlisted in the corps. These are not sufficient, with the number required as artificers and mechanics at the larger establishments, to furnish the requisite guards and police for the whole number of ordnance stations. At some of the arsenals and depots we have only 2 and 3 enlisted men. It is important that a small number of enlisted men, subject to the Rules and Articles of War, and bound to military obedience and discipline, and to a term of service, should be supplied to every ordnance and other military station. Nor would this involve any increased expense whatever. On the contrary, it will be a measure of economy. The enlisted men would merely take the place of men who are now hired at these ordnance posts; and their pay would be less than is paid to hired men. Besides the economy, other and more important advantages would result from having enlisted men in place of the hired. The duties of the workshops, magazines, and laboratories require skill and practice; and the term of service of enlisted men enables the department to secure these qualifications for field service, or wherever they

are needed, and to retain them so long as they are wanted; whereas a hired artificer cannot be transferred from one post to another, or sent into the field, or kept on any service not agreeable to him. The hired men who were procured and sent to Texas abandoned the service when they were most wanted.

I therefore propose that the enlisted men of ordnance be increased 150 men beyond the number now allowed; so that the whole number in service shall not exceed 400 men.

On the subject of an increase of officers I deem it necessary to make only a brief statement.

The act of July 5, 1838, thirteenth section, provided twenty lieutenants of ordnance. This was the bill, as reported by Colonel Benton, from the Military Committee of the Senate, on the recommendation of the War Department, and as it passed into a law. The ordnance organization, as provided in this act, in no respect exceeded the wants of the service and the number of officers required at the different armories, arsenals, and depots.

The act of 7th July, supplementary to this act, reduced the number of ordnance lieutenants to twelve. This was carried, with some other similar retrenchments applied to other parts of the Army, on the score of economy. It was represented by this office that thereby a sufficient provision was not made for the full efficiency of this department.

Accordingly, it has since been found necessary to attach an additional number of lieutenant of the corps by brevet commissions. Since the passage of the law of 1838, the stations and duties of the corps have increased. The new system and regulations for the foundry service require ordnance officers at the private foundries where ordnance is fabricated. An increased demand, also, is now made on the corps for field service in Texas, and in the depots to be established there, and the want of both officers and men is severely felt.

The permanent ordnance establishments, armories, arsenals, and depots are twenty-six. Besides these are the four foundries employed in the fabrication of cannon, at which ordnance officers are required at present, and with the number of officers now in service we can only station officers at two of these. There are three ordnance stations in Texas, making thirty-three stations in all. At eleven of the permanent establishments we are now able to station only one officer; some of these the most important, as the armories, while eight arsenals and depots are in charge of military storekeepers, there being no commissioned officers who can be assigned to them. Some of these are important arsenals.

The insufficiency of the present organization is therefore manifest. I recommend that the Ordnance Corps be officered as the Corps of Engineers, viz. 2 lieutenant-colonels, 12 captains, 12 first lieutenants, and 12 second lieutenants. The ordnance requires fully as large an organization as the Engineer Corps. This is apparent from the number of its permanent stations, and the important operations which are conducted at the armories, the larger arsenals, and the foundries. The proposed organization will only substitute 6 first lieutenants and 6 second lieutenants for the 9 brevets, or more, which now are or may be attached to it, and add 1 lieutenant-colonel and 2 captains. A certain organization by law is preferable to the mode of supplying the necessary number of officers to the corps by attaching brevets.

I am sir, &c.,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Hon. W. L. MARCY,
Secretary of War.

[Letters to W. D., vol. 9, p. 15.]

ORDNANCE OFFICE,
Washington, May 21, 1846.

SIR: In accordance with the circular from the War Department of the 19th instant, I submit herewith an estimate of the amount which this bureau will probably require for its branch of the service, out of the appropriation designated in the circular.

Respectfully, &c.,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Hon. W. L. MARCY,
Secretary of War.

Estimate for equipments and ammunition for infantry, riflemen, and cavalry, and of field and siege batteries and ammunition for artillery.

1. For 30,000 sets of infantry accouterments, each set to consist of one cartridge-box and plate, 1 cartridge-belt and plate, 1 bayonet-scarabard and frog, 1 waist-belt and plate, 1 gun-sling, and 1 brush and pick	\$98,000 00
2. For 12,000 sets of rifle accouterments, each set to consist of rifle, pouch, and flask-belt, 1 waist-belt and plate, 1 gun-sling, and 1 brush and pick	37,000 00
NOTE.—If the carbine cartridge-box be used instead of the pouch, flask, and belt, then each set will consist of a carbine cartridge-box, a waist-belt and plate, a gun-sling, and a brush and pick, and the 12,000 sets will cost \$18,600, reducing the estimate to	
3. For 8,000 sets of cavalry accouterments, each set to consist of 1 saber-belt and plate, 1 pistol cartridge-box, and 1 pair of holsters	168,200 00
	47,000 00
Total for accouterments	182,000 00

AMMUNITION.

4. For 12,000,000 cartridges for muskets, 5,000,000 for rifles, and 3,000,000 for pistols, which will require about 30,000 pounds of No. 1 and 16,000 pounds of No. 2 paper, 2,223 barrels of musket and 930 barrels of rifle powder, 600,000 musket-flints, 250,000 rifle-flints, and 150,000 pistol-flints	110,000 00
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FIELD-BATTERIES AND AMMUNITION.

5. For 6 field-batteries, each to consist of 4 6-pounder guns and 2 12-pounder howitzers, with 6 gun-carriages, 6 caissons, 1 traveling-forge, and 2 battery-wagons; with harness complete for the whole	60,000 00
6. For ammunition for 6 field-batteries, as follows: 3,360 strapped shot, fixed, 960 canister, fixed, 718 strapped-shells, 480 spherical case-shot, strapped (6-pounder), 718 spherical case-shot, strapped (12-pounder howitzer), 192 canisters with sabots (12-pounder howitzer), with suitable cartridges, fuses, port-fires, tubes, slow and quick match	8,500 00

SEIGE-TRAIN AND AMMUNITION.

7. For a siege-train to consist of 50 pieces of 24, 18, and 12 pounder guns, 8-inch siege-howitzers, 10 and 8 inch light mortars with their carriages, battery-wagons, forges, sling-carts, mortar-wagons, trench-carts, and transporting-wagons with implements and harness	78,000 00
8. For a supply of ammunition for a siege-train of 50 pieces, say 400 rounds per piece	40,000 00
9. For contingent expenditures	21,500 00
Total estimate	500,000 00

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

ORDNANCE OFFICE,
Washington, May 28, 1846.

SIR: In regard to the use of the Southeast Battery, in Boston Harbor, by the militia of Massachusetts, and their practice with artillery, as recommended in the letter from the Engineer Department, referred to this office, I have to report that the guns, carriages, and implements can be supplied of the description recommended. The regulations which govern the practice in regular garrisons provide for each company with a fixed battery seventy shot or shells per year. (See General Order No. 21, of 1842). If there was any certainty that the troops which are to have the benefit of this practice would be the same that would be called upon to defend the forts in case of attack, there might be no objection to such a supply of ammunition for the purpose as is recommended, the cost of which will be about \$2,000. But under the circumstances, it is considered very doubtful whether the possible benefit that may result will justify the necessary expenditure of the quantity of ammunition proposed, or of any greater quantity than is provided by the regulations before referred to, even if it will of that.

The letters on this subject which have been referred to this office are returned herewith.

Respectfully, &c.,

G. TALCOTT,
Lieutenant-Colonel of Ordnance.

Hon. W. L. MARCY,
Secretary of War.

ORDNANCE OFFICE,
Washington, June 11, 1846.

SIR: To the inquiries accompanying the note from the Hon. A. Burt, referred to this office, I have to make replies as follows:

1st. The prices which have been paid for cannon made for this department during the time specified are, for bronze cannon, 40 cents a pound; for 12, 18, 24, 32, and 42 pounder iron cannon, 6 cents a pound; for columbiads, 10 and 8 inch, $5\frac{1}{2}$ to $6\frac{1}{2}$ cents a pound. All these cannon are required to be cast solid, bored, and turned on the exterior.

2d. The prices paid for shot and shells, during the same time, are, for solid shot, of any caliber, $3\frac{1}{4}$ cents per pound; for shells, of any caliber, 5 cents per pound.

3d. The prices paid for iron for musket and rifle barrels, during the same time, are from 6.25 to 6.56 cents per pound for best quality iron—principally 6.25—none but best quality iron suitable for this purpose.

4th. The other purposes for which iron is used by this department are principally for the construction of gun-carriages, requiring tires, bands, nuts, bolts, axle-trees, &c. This iron is purchased by the commanding officers of the arsenals, in such quantities as are required at each, at prices varying according to the kind of iron wanted, and the

location of the arsenal. They have varied during the last twelve months from $3\frac{1}{2}$ to $5\frac{1}{2}$ cents per pound.

Mr. Burt's note, with the accompanying paper, is returned herewith.

Respectfully, &c.,

WM. MAYNADIER,

Captain of Ordnance, in charge of Ordnance Bureau.

P. S.—All the above-mentioned articles are, of course, subject to such inspections and tests before reception as this department may prescribe.

W. M.

[96—A—1846.]

ADJUTANT-GENERAL'S OFFICE,

Washington, June 15, 1846.

SIR: Brevet Major-General Taylor having been instructed to make a forward movement from the Rio Grande, in the progress of his march into the interior of Mexico it may become necessary to purchase supplies and necessaries for the Army. To enable the general to make cash payments to the people of the country, it is necessary that his military chest be well furnished; and the general-in-chief accordingly directs that you provide the officers and agents of the department, who may serve under General Taylor, with ample funds to meet any wants of the service.

I am, sir, very respectfully, your obedient servant,

R. JONES,

Adjutant General.

Lieutenant-Colonel GEORGE TALCOTT,

Ordnance Department, Washington, D. C.

[147—A—1846.]

MATAMORAS, MEXICO,

June 19, 1846.

SIR: The following report, in relation to the battery of light artillery under my command, I have the honor to submit through the general commanding-in-chief to the consideration of the honorable Secretary of War.

A battery of light artillery, equipped and appointed for field service, consists of 6 guns, 6 caissons, 2 battery-wagons, 2 forges, drawn by 6 horses each. This composition of a field battery the experience of the last half century has shown to be the best for a war establishment; it has been approved by the most scientific and distinguished military writers of Europe, and adopted, with slight alteration, by our own government.

To give efficiency to a battery thus constituted requires at least 110 horses and 110 men on parade; and to insure this number for duty the company should be 120 men and 120 horses strong. A battery thus equipped and appointed can take the field with 1,200 rounds of assorted ammunition, materials and tools for repairs, horses to haul and maneuver it with celerity and effect, and men enough to work the guns, which is far from being the case with the battery under my command.

My battery at present consists of 4 guns, 4 caissons, 1 forge, 1 battery-wagon, 51 horses, or rather 46 serviceable horses, and 52 effective men.

The pieces being drawn by 4 instead of 6 horses, I am enabled to carry but half the supply of ammunition that the chests will hold.

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The experience of the past campaign fully justifies me in stating that 4 horses to a carriage are not enough to haul even half a supply (100 rounds per gun) of ammunition, and this half supply is not enough to fight a single battle. On the field of Palo Alto, I was obliged to replenish my exhausted ammunition-chests within reach and under the fire of the enemy's guns; officers were obliged, in addition to their own duties, to perform those of the men, and serious embarrassment was felt (for the want of materials and tools necessarily left in depot) in making the repairs that the enemy's shot had rendered necessary. These facts require no comment to give them force; a bare mention of them must convince an unprejudiced mind that battles are more likely to be lost than won by armies thus provided for.

There can be no doubt that one battery, properly equipped and appointed, would be of more value than the whole three serving with the army of occupation, in their miserably unfurnished condition.

It may be proper to remark that the officers in command of the other batteries fully concur with me in this report, which, as the senior officer of this arm of the service, I present to the department.

The considerations that have chiefly influenced me in making this report to the Department of War are, firstly, the importance to the service of the subject to which it refers; secondly, the embarrassment I meet at every step in the discharge of my duty; and, lastly, to place myself right with the department in case of any reverse that may arise from causes altogether beyond my control.

The manifest desire and determination of the government to place the army in a condition to carry on the most active and vigorous operations I conceive not only warrant me in making this report, but render it my duty to submit it to the department, which I do in the full confidence that it will receive such action (legislative if necessary) as the exigencies of the service seem to demand.

Very respectfully, I have the honor to be, sir, your obedient servant,

JAMES DUNCAN,

Commanding Field Artillery, First Brigade, Army of Occupation.

General R. JONES,

Adjutant-General, U. S. A.

[Indorsement.]

HEADQUARTERS, ARMY OF OCCUPATION,

Matamoras, June 21, 1846.

I have purposely deferred any step to increase the efficiency of the field batteries until I can receive instructions from general headquarters, which will enable me to form some calculation as to the future probable wants of the service in this quarter. The service of six guns per battery will require a very heavy increase of the number of horses, and also large transfers of men from foot companies already much reduced. In case this army takes the field, it may be for the benefit of the service to have four batteries of four guns each, rather than three of six. Captain Taylor's company of the First Artillery affords me the means of manning a fourth battery at once, when required. If left to me, I shall not fail, when the proper time arrives, to give the batteries such strength, in men and horses, as I deem warranted by the wants of the whole service.

Z. TAYLOR,

Brevet Brigadier-General, U. S. A., Commanding.

REMARKS.

June 15, General Taylor was written to as follows: * * * "Until otherwise directed, the standard of companies, for the artillery and infantry, will be 80 privates; the light artillery companies may exceed that number, if necessary, as full batteries have been ordered for those five companies, which proved so efficient and skillful in the late conflicts with the enemy." "This is a good report, and deserves consideration; the question is, shall there be any modification of the foregoing instructions to General Taylor, by referring the subject now to his discretion, or let them remain, confirmed as they were by Captain Duncan's suggestions?"

Respectfully submitted, July 18.

R. JONES,
Adjutant-General.

[Letters to W. D., vol. 9, p. 27.]

ORDNANCE OFFICE,
Washington, June 19, 1846.

SIR: In obedience to the instructions on the subject, I have the honor to submit, herewith, an estimate of the amount of money required by the Ordnance Bureau during the fiscal year 1846-'47, over and above what has been already estimated for the Regular Army for that period.

Very respectfully, &c.,

WM. MAYNADIER,
Captain of Ordnance, in charge of Ordnance Bureau.

Estimate of the amount of money that will be required by the Ordnance Bureau to be appropriated during the next fiscal year (from July 1, 1846, to July 1, 1847) for the prosecution of the war with Mexico, over and above the amount that has been already estimated for the Regular Army for that period.

	Regular Army.	Volunteers.
1. For accouterments and equipments for 25,000 volunteers, in proportion of 15,000 infantry, 6,000 riflemen, and 4,000 cavalry		\$91,000
2. For ammunition for 25,000 volunteers		55,000
3. For accouterments and equipments for the additional number of men in the Regular Army (including the regiment of mounted riflemen)	\$32,000	
4. For ammunition for the additional force of the Regular Army with full companies	5,000	
5. For six field batteries	20,000	40,000
6. For ammunition for six field batteries	2,800	5,700
7. For a siege-train of 50 pieces	39,000	39,000
8. For ammunition for siege-train	20,000	20,000
9. For four 8-inch mortars and beds with 200 rounds of ammunition, twenty 24-pounder guns and carriages with 4,000 rounds of ammunition, eight 6-pounder guns and carriages with 2,400 rounds of ammunition		80,000
10. For 10,000 cavalry sabers and 4,000 swords		86,000
11. For contingencies	5,200	15,300
Total	124,000	432,000
Aggregate		124,000
		556,000

ORDNANCE OFFICE,
June 19, 1846.

[Letters to W. D., vol. 9, p. 29.]

ORDNANCE OFFICE,
Washington, June 24, 1846.

SIR: In reply to the letter of George W. Murdock, esq., of the 22d instant, referred to this office, I have the honor to state that arms have occasionally been advanced, under the law of 1808, to some of the States, whose annual quotas amounted to but few muskets. By an order, however, of the President, in 1835, no further advances are allowed to be made. That order is as follows: "No advances of arms can be made, more especially to States and Territories to which no arms are due."

Volunteer companies of such States as had overdrawn their quotas have sometimes, under particular circumstances, been furnished with arms, upon giving bonds for their safe-keeping and return to the United States, when called for, and on the authority of the executive of the State to receive them as part of its prospective quota when due. But this is considered only another method of drawing in advance, and as not in accordance with the President's directions before quoted. Every such issue furnishes a precedent on which to base another call, and there is danger of its becoming, if not stopped, the rule instead of the exception. The appropriation for arming and equipping the militia might in this way be unintentionally anticipated.

Flint-lock pistols were formerly procured from Mr. R. Johnson, of Middletown, Conn., and of A. Waters, Millbury, Mass., at \$7.50 each, including appendages, such as screw-drivers, wipers, ball-screws, bullet-molds and spring vises.

Percussion pistols are now procured from Henry Aston, of Middletown, Conn. He is under contract to furnish 30,000 at \$6.76 $\frac{2}{10}$ each, including appendages.

Holsters and caps are procured of Messrs. R. Dingee, and of Henry A. Dingee, New York, and at James Boyd & Sons', Boston, at \$2.62 $\frac{1}{2}$ a pair.

Carbines of the latest model are obtained from S. North, of Middletown, Conn., at \$17.50 each, and weigh about 7 pounds.

Arms of such models only as are provided for the Army are issued to the States.

Mr. Murdock's letter is herewith returned.

I am, sir, &c.,

WM. MAYNADIER,

Captain of Ordnance, in charge of Ordnance Bureau.

Hon. WM. L. MARCY,

Secretary of War.

[112—A—1846.]

CIRCULAR.

ADJUTANT-GENERAL'S OFFICE,

Washington, June 29, 1846.

SIR: The Secretary of War directs that there shall be a single military chest with the headquarters in the field of the army under Major-General Taylor, subject to his orders, but to be in the immediate charge of the chief disbursing officer of the Quartermaster's Department at said headquarters.

Instead of furnishing your agents with ample funds to meet the wants of the service, as directed in the letter from this office of the 15th instant, you are requested to report the amount of funds you deem necessary for your department. If, however, you have required funds under the instructions of the 15th instant, you will now direct the agents to whom the funds were sent to transfer the several amounts to the officer of the Quartermaster's Department above referred to.

I am, sir, very respectfully, your obedient servant,

R. JONES,
Adjutant-General.

Lieutenant-Colonel TALCOTT,
Ordnance Department, Washington.

[Letters to W. D., vol. 9, p. 35.]

ORDNANCE OFFICE,
Washington, July 10, 1846.

SIR: The great need of additional officers of ordnance to perform the multifarious duties of this department (see letter from this office dated 11th May, 1846, to the Secretary of War), amongst which are the furnishing of officers and men with the different columns of troops lately put into motion, induces me to urge an increase of the corps, and for that purpose I ask your attention to the inclosed bill, which, from the pressing nature of the case, would no doubt, on a proper representation of the matter, be promptly passed by Congress.

I am, sir, &c.,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Hon. W. L. MARCY,
Secretary of War.

A BILL to provide for the better organization of the Ordnance Department.

Be it enacted by the Senate and House of Representatives of the United States in Congress assembled, That the Ordnance Department shall be so organized as to contain the same number and grades of officers as are now provided by law for the Corps of Engineers, and that the officers and enlisted men of ordnance shall be subject to the rules and articles of war, and shall be entitled to the benefits of the pension laws in like manner with the other troops of the United States Army.

Reasons for the proposed increase of the number of officers of the Ordnance Department.

The ordnance corps now contains, agreeably to the supplemental act of 7th July, 1838, 6 field officers, 10 captains, 6 first lieutenants, 6 second lieutenants—in all 28 officers.

The act of July 5, 1838, made the organization of the Ordnance Corps to be 36 officers, and the reduction, with some other retrenchments applied to other parts of the Army, was carried in the supplemental bill on the score of economy, although at the expense of a suitable provision for the wants of the service at that time.

The national armories were then superintended by civil officers; they have since been placed by law in charge of officers of ordnance, and for their proper management should have at least four (better if six) officers.

When the present organization of the Ordnance Department was made, the fabrication of ordnance at the foundries was under the exclusive management of the proprietors of these establishments, this department having no other control over them than to inspect and prove their work when finished. It resulted from this that much of the ordnance was made of just good enough quality to stand the proof tests, but not fit for service afterwards. The only remedy was a personal superintendence by skillful officers of all the operations connected with the manufacture of ordnance, from the selection of the metal to the finishing and reception of the guns. The five foundries at which ordnance officers are required need the constant service of at least five officers, besides one to direct and supervise the operations at all, and to see that uniformity in the mode of fabrication, and the patterns of the guns, is preserved. The value of the ordnance thus obtained will much more than counterbalance the expense of the additional officers, to say nothing of the moral effect on the troops, from increased confidence in the arms, and the waste of life so often caused by the bursting of imperfect guns. These additional duties, since the present organization, thus call for 12 more officers than were necessary when the act of 5th July, 1838, was passed, and if the number then proposed was (as in fact it was) no more than enough for the service at that time, there should be now 12 more, or 48 officers. The number proposed by the bill for the better organization of the Ordnance Department is 43.

The additional expense per annum which will result from the proposed organization is as follows:

Pay and emoluments of 1 lieutenant colonel (per annum).....	\$2,040 00
Pay and emoluments of 2 captains (per annum).....	2,748 00
Pay and emoluments of 12 lieutenants.....	12,935 52
	<hr/>
	17,723 52
Deduct pay and emoluments of 10 brevet lieutenants, the usual number that would be detached to the corps, and whose services might be dis- pensued with.....	10,779 60
	<hr/>
Amount of additional expense (per annum).....	6,943 92

The above reasons are in addition to those already given in my letter to you of the 11th May. They do not refer to the services now required of ordnance officers in the field, but to those which are permanent, and constitute a regular portion of the duties of this department, charged with the preparation and custody of all the arms, ammunition, accouterments, mining and intrenching tools—in short of every thing necessary to arm and equip the military force of the country, regular, volunteer, and militia, as also the armament of the fortifications. The establishments permanently in charge of this department are 2 national armories, 4 arsenals of construction, 16 arsenals of repairs and deposit, 4 depots, not including the various temporary depots required for the armies now in the field. At least one of these in Texas will be permanent, and I recommend strongly the appointment of an additional military store-keeper to be stationed in that part of the Union. At present we are obliged to employ a hired agent there.

Respectfully submitted to the Secretary of War.

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

ORDNANCE OFFICE,
July 11, 1846.

[483 W. D., 1846.]

ATTORNEY-GENERAL'S OFFICE,

August 10, 1846.

SIR: In your communication of the 18th March, 1845, you requested my opinion on a claim of Major James W. Ripley, an officer of the Army, for pay and allowances as civil superintendent of the Springfield Armory, from 15th April, 1841, to 23d August, 1842.

Major Ripley was on duty appropriate to his rank with quarters in Maine, and duly received his Army pay and allowances for the period embraced in this account.

By the act of 1838 the pay and allowances charged in his account were allowed to the superintendent of the Springfield Armory, and appropriations by law were made accordingly.

The question is whether the acts of 1835 and 1839 confined Major Ripley to his proper Army pay and forbid the allowance of his claim.

I beg leave to refer you to an opinion of my predecessor, Mr. Nelson, communicated to the Secretary of the Treasury on the 22d September, 1843, and to an opinion of Mr. Grundy to the same officer of the 4th April, 1839.

In my opinion, addressed to the Secretary of War on the 14th July, 1845, I state that a construction had been given to the act of 1839, by which extra compensation was paid to persons whose pay and emoluments were fixed by law, where such compensation was allowed by law for the service rendered.

By the act of 23d August, 1842, all such allowances are cut off, unless the appropriation is specifically made for the extra compensation. But this act is prospective. Major Ripley's account is not affected by it.

On the interpretation given to previous acts, as Major Ripley performed this service in addition to his appropriate duties, and as an appropriation was made to satisfy the legal pay and allowances for this extra duty which no other person could receive, I am of opinion that his account should be paid. I understand that the same rule has been observed in other cases.

I regret the delay in preparing this opinion; but for a large portion of the time I suspended my examination in compliance with the wishes of one of Major Ripley's friends, as I understood them; since then I have been occupied with other subjects.

I have the honor to be, &c.,

J. Y. MASON.

Hon. W. L. MARCY,
Secretary of War.

[Inclosure I.]

MEMORANDA UPON THE AUDITOR'S LETTER.

February 19, 1845. *Case of Maj. J. W. Ripley, claiming the pay of civil superintendent of Springfield Armory from April 15, 1841, to August 23, 1842.*

There is no question as to the fact which *prima facie* entitles him to the pay annexed by law to the office, to wit, that he actually filled and performed the duties of the office. He is then entitled to the pay he claims, unless there be some sufficient legal bar set up by the United States. That bar is suggested as arising out of the acts of Congress of March 3, 1835 (chap. 26), and March 3, 1839 (chap. 32), and the general order of the War Department No. 14, dated March 14, 1835, founded upon the first above cited act. If these acts furnish no such bar, it is admitted that upon the authority of Colonel Talcott's case, decided by Mr. Attorney-General Butler, this claim

must be allowed; the only difference between the two cases which is suggested being that Colonel Talcott's arose before the passage of the acts and regulations in question. It is not pretended that any bar exists in the mere fact (independently of these laws) that Major Ripley received for the period covered by the present claim the pay and emoluments of his proper office as an officer in the Army of the United States. It is perfectly well settled, not only in the case of Talcott, but in the cases of Cross, King, and numerous others which may be found in the book of opinions of the Attorney-General, that if the claimant actually filled the two offices, and discharged the duties of both, he is legally and equitably entitled to both pays. Accordingly, the present Chief Justice Taney, while a member of the cabinet of General Jackson, for one and the same period discharged the duties of Secretary of the Treasury and Attorney-General, and received the pay annexed by law to both offices. Consider now this question: Was the pay annexed by law to the office of Secretary of the Treasury and received by Mr. Taney while he was also Attorney-General in any legal or reasonable sense an *extra allowance* or compensation to the office of Attorney-General? Was it "extra allowance" at all, in the meaning and within the mischief of these statutes? Clearly not. Because the office of Secretary of the Treasury was a substantive office created by law, and having a certain pay annexed to it by authority of law. He, and he only, who lawfully filled that office *ad interim* until a permanent appointment was made had an absolute legal right to the pay appropriated to it by law. The pay was not, in contemplation of law, extra or additional to anything. It had an independent legal existence of its own. But if it could, by any perversion of language, be called an "extra allowance or compensation," it was clearly an allowance or compensation which was "authorized by law"; for the law allowed that certain compensation for the discharge of the duties of Secretary of the Treasury. These words, however, and similar words in other statutes of the United States, *in pari materia*, have received an authoritative construction, not only by the repeated allowance of two distinct substantive compensations to the same person for the same time, but in several instances by a critical examination of their import by the Attorney-General.—(Opinions Attorney-General, page 1144.)

In the case of Major Cross, which arose after the passage of the act of 1835, in which those words are used—words which the Attorney-General had construed as having as large effect and meaning as any since attributed to the act of 1839, there was an additional special law applying to the precise case, viz, the 5th section, act 4th July, 1836, which authorized the appointment of any officer of the same corps to perform temporarily the duties of Quartermaster-General, at any time during the absence of that officer, "*provided that no additional compensation be allowed therefor.*"

Major Cross was appointed during the absence of General Jesup, who, being in the field, received the pay of his brevet rank, and performed duties there which were legally incompatible with those of Quartermaster-General, and did not receive pay as such Quartermaster-General.

Major Cross did duty as Quartermaster (his permanent office), and claimed pay as such.

The Attorney-General, after a careful criticism of the proviso, decided that the words did not import that the compensation annexed by law to the office should not be received by the officer who temporarily discharged its duties; that such a construction would assign to Congress "an intention contrary to natural justice," "not to be imputed to the law maker, unless he plainly expresses it"; that the fair construction of the language was to forbid the allowance of any compensation "*in addition to the compensation already allowed by law for the performance of those duties.*"

The same principles are reiterated in the subsequent case of Dr. King, who, upon the opinion of the Attorney-General (page 1204), received the pay of assistant surgeon and of Surgeon-General, it appearing that he actually discharged the duties of both offices, and the law having annexed a certain pay to each. To multiply citations appears to be unnecessary. It may be well, however, to refer to the language of the Attorney-General in the last cited case (of King), where he says in conclusion: "There is an official connection between an assistant surgeon and the Surgeon-General, both officers belonging to the medical department of the Army, and the latter being the head of that staff. Dr. King's right to the pay of the two offices is therefore less clear than the right was in the case of Mr. Taney, to which he refers, because there was no connection whatever between the office of Attorney-General and that of Secretary of War, the two offices held by Mr. Taney. Still (he proceeds), if it was consistent with military law, &c., and he *did* perform them, &c., the same principle will apply." And it was applied.

The two offices filled by Major Ripley, like those of Mr. Taney, had no legal connection whatever. Dr. King's right was less clear than Major Ripley's is.

These cases and principles show that the pay now claimed by Major Ripley is not extra allowance or compensation in the sense of the act of 1835, or in any sense; that he has notwithstanding that act (and the regulation based upon it), a legal and equitable right to the compensation claimed; that to deny it would be to im-

pute to Congress an intention contrary to natural justice, which imputation is not authorized by the language of the law of 1835. If the claim is good notwithstanding the act of 1835, as is clear upon authority, it is also undeniably good, notwithstanding the act of 1839. A comparison of the language of the two acts must demonstrate this proposition.

The act of 1835 "provided that no officer of the army shall receive any per cent., additional pay, extra allowance, or compensation in any form whatever, on account of, &c., or for any other service or duty whatsoever, unless authorized by law."

The act of 1839 enlarges the class of persons upon whom the prohibition is to take effect, which is unimportant in the present case, and in all points, touching the case, is even less explicit than the act of 1835; certainly not more distinct or comprehensive. So far as this case is concerned, the construction of the two laws must be identical. The first law was held no bar in similar cases. The second, separately or joined with the first, can furnish no such bar.

The regulation referred to is based upon and sustains the construction given to the act of 1835, and by the enumeration of cases of extra allowance and compensation affords the strongest argument for the exclusion of a case like the present from its operation, since they are all cases of allowances in addition to the compensation fixed by law for certain duties to which the others were mere incidents, and have no analogy to the case of two substantive officers having a certain pay for each authorized by law.

J. M. CARLISLE.

[Inclosure 2.]

Note on Major Ripley's case.

The Auditor admits Ripley's claim (by the decision of Attorney-General Butler in Talcott's case, precisely same as Ripley's) unless it is barred by the law of March, 1835, and March, 1839. Cross's case is since the law of 1835. That law was no bar in that case. (Attorney-General Butler's decision.) That law was limited to the appropriations of that session. But the regulation of the War Department, founded upon the law dated 14th March, 1835, was not so limited. (Decision of Supreme Court of the United States in case of Eliason.) That regulation is in force now. It is Attorney-General's interpretation of the law of 1835, made regulation of the War Department without limit of time. Therefore the law of 1835, as interpreted by Attorney-General and in force at the time, did not bar Cross's claim.

The law of 1839 is of the same meaning and effect, as to this case, as the law of 1835. It extends the class of persons and officers to whom the law of 1835 applied. The law of 1835 applied only to Army officers; the law of 1839 applies to all officers. In other respects its terms are not more comprehensive. Therefore this law of 1839 (no more than the law of 1835, as in Cross's case) cannot bar Ripley's claim.

The Attorney-General may, therefore, now reply to Mr. Marcy that this claim is already decided in his office by the decisions in these cases, Talcott's, Cross's, and many others.

But suppose it were an open case, not settled by the previous decisions, and the question now came for the first time on the meaning of these acts of 1835 and 1839, what is meant by "extra or additional compensation" to an office? Certainly not the salary annexed by law to another office. The salary of one office is not extra or additional to the salary of another office. They are separate and distinct; each stands by itself. The pay which Mr. Taney (now Chief Justice United States) drew as Attorney-General was not in any reasonable or legal sense extra or additional to his office and pay (which last he also drew) of Secretary of Treasury.

In the regulation of 14th March is Attorney-General's interpretation of this language. He recites the cases of extra allowance now prohibited by these terms. He makes a long recital. All the cases are of duties *incident to the office*. Not one case is where a separate, distinct office is also filled—an office created by law.

Again, if the language "extra or additional pay" could apply to the pay of a separate office, still the words "authorized by law" would save and except this case. The pay Ripley claims is "authorized by law." The act prohibits the allowances which (at that time, in many cases, were made by regulations of the executive departments; not allowances which had authority by law. See regulation of 14th March, where Attorney-General admits the extra allowance to officers on Indian service, because there was law for it. See, too, the law. It is not expressed as to Army officers. It provides, generally, traveling expenses to all persons on that service. All that Attorney-General Butler required was that some law should recognize the allowance.

These acts intend that the salary of all offices shall be fixed by law. The mischief they aimed to remedy was the practice of putting up salaries by incidental allowances.

They do not prohibit the executive departments of government from putting one officer, temporarily and *ad interim*, in another office. And while such offices are distinct and he does the duties of both, they do not prohibit him the pay of both. That has occurred frequently, and if the law meant to prohibit that it was easy to say so. The law has never yet been so interpreted.

Respectfully submitted to the Attorney-General for Major Ripley.

J. F. LEE.

[Inclosure 3.]

WASHINGTON, February 21, 1845.

DEAR SIR: I received last evening your note of yesterday morning, informing me that you had submitted Major Ripley's claim, which I left with you on 8th instant, to the proper accounting officers of the department for a report, which had not then been made. I regret not to have known your purpose to do so before, so that opportunity might have been had to exhibit the grounds of the claim to the Auditor. In the hope that a report has not yet been made, I called upon him this morning, and I was informed that it had been made under date 19th, and was sent to you yesterday, probably after your note was dispatched. The accounting officers, I presume, are only to audit and ascertain balances upon such principles as are conformable to law, and directed by the head of the department, and the object of applying to you in the first instance was to have the construction of the laws settled before the accounting officer should be called on to audit the claim. Mr. Lewis has shown me a copy of the report which he has made, and which consists, so far as I recollect, for I have no copy, of reference to certain acts of Congress and a regulation of the War Department as a basis for your determination of the validity of the claim. To one of these laws—3d March, 1839—I had already referred you myself, and I also referred you to other acts controlling this and exempting Major Ripley's case from its operation, to which the Auditor makes no allusion whatever. He first cites the act of March 3, 1835, the last clause of chapter 303. I presume, as that is the only law of that date I find bearing on the subject. Now, on reference to it, it will be seen that the restrictions contained in it apply solely to "*money appropriated by law during the present session.*" It has not the slightest possible bearing upon this claim or upon any claim whatever, but merely restricts the expenditure of the appropriations of that session. Why this claim, thus utterly inapplicable, is forced in to give weight against the claim, is, to say the least, extraordinary. He refers also to the act 3d March, 1839, already adverted to. That act indeed forbids that "*any extra allowance or compensation*" shall be made in certain cases.

Major Ripley does not ask for any "*extra allowance or compensation,*" but only the compensation which the law fixes for the duties he performed.

That the superintendence of the armory was no part of his duty as an officer of ordnance is settled by the opinion of Attorney-General Butler to which I referred you.

At the time he took charge of that establishment, there was no power in the War Department to place it under military command. The law prescribed and required a civil superintendence, and provided compensation to whoever should fill that post. See act July 5, 1838, chap. 1021, sec. 32 fixing the compensation of superintendents. This law was in full force, not repealed, until August, 1842.

From April, 1841, to August, 1842, Major Ripley performed the duties of superintendent, but as an officer of the Army, for the department had no power to assign him that duty as an official duty. The law did not allow it. It was not done. During all that time he performed all his Army duties as commanding Kennebec arsenal, and has been paid as was his due. The act of 1839 only contemplates forbidding *extra compensation* for official duties, or duties in the line of one position; but does not reach the case where the duties, as Attorney-General Butler says, are extra-official, other than such as could be required. It is impossible to make the distinction more clear than it is presented in the opinion of that officer.

But if it should be thought that the provision referred to does reach such a case, then, in the second place, I submit that it is saved by the conditions of the provision itself. The words are "unless the said extra allowance or compensation be authorized by law." I contend that the compensation claimed *is* authorized by law. The act of 1835, before cited, fixed it, and it so stood till the act of 1842. The 2d section of that article, chapter 186, enacted that the offices of superintendents, &c., "shall be and the same are hereby abolished." They were in existence *until that day*. The law giving compensation was in force *till that day*. Major Ripley filled that office, not as Army officer, *till that day*, and how can it be said, then, that the law does not authorize compensation when it expressly "*in totidem verbis*" provided for it?

Besides, the appropriations for the support of the armories in those years, though made in general terms, as had already been customary, enhanced the compensations of the superintendents and other officers and men. This was another sanction and an-

thority for the allowance. Why did Congress appropriate agreeably to the estimates, which were made out upon the idea of compensation, unless they intended it to be given? The opinion of the Second Comptroller in Captain Swift's case, fortified by Attorney-General Grundy's opinion, decides this point.

To none of the laws or considerations does the Auditor advert, and probably if he had done so it would have been without effect; for, if I understood Mr. Lewis correctly this morning, he never did, and never will, allow compensation to any officer in two capacities, however different the service, however arduous the duties, however equitable and legal. It seems to be enough, in his judgment, that an officer is *once* paid, though he discharge a dozen different duties, for each of which the law provides compensation.

I cannot but indulge the conviction that, upon full examination of these laws, you will find the views I have taken of them correct.

What the Army regulation to which the Auditor refers is I have no means of knowledge, but, I take it, it can only apply to the Army, and to officers on legitimate Army duty. It had no effect in Colonel Talcott's case. Least of all can it take away rights secured and given by express law.

I forbear to press upon you the *equitable* considerations, which I stated orally, in favor of making compensation for services of the most valuable character, rendered at great cost and amid much perplexity and resistance; services which have reflected great credit on the department and the service.

Very respectfully, your obedient servant,

GEO. EVANS.

Hon. WM. WILKINS.

[Inclosure 4.]

ATTORNEY-GENERAL'S OFFICE,
July 14, 1845.

SIR: I have received your letter of the 22d April last, with the accompanying report of Colonel Abert, from the Topographical Bureau, and have examined the two questions submitted for my opinion.

They are thus stated:

1st. Can the War Department, in the execution of its public duties, employ and compensate officers of the revenue service? 2d. And, if so, can that compensation ever be allowed to exceed four hundred dollars per annum?

The 18th section of the act of 7th May, 1822, enacts "that no collector, surveyor, or naval officer shall ever receive more than four hundred dollars annually, exclusive of his compensation as collector, surveyor, or naval officer, and the fines and forfeitures allowed by law for any services he may perform for the United States in another office or capacity."

By the act of 3d March, 1839, it is enacted "that no officer, in any branch of the public service, or any other person, whose salaries or whose pay or emoluments is or are fixed by law and regulations, shall receive any pay, allowance, or compensation, in any form whatever, for the disbursement of public money, or the performance of any other service, unless the said extra allowance or compensation be authorized by law."

Notwithstanding this section, and the 5th section of the act of 3d March, 1841, restricting the emoluments of collectors, Mr. Legaré was of opinion that collectors could be compensated for extra services, under the act of 1822. A construction was given to the act of 1839 by which extra compensation was paid to persons whose pay or emoluments were fixed by law, where such compensation was allowed by law for the service rendered.

Then came the provisions of the act of 23d August, 1842, which enacts "that no officer in any branch of the public service, or any other person whose salary, pay, or emoluments is or are fixed by law or regulations, shall receive any additional pay, extra allowance, or compensation, in any form whatever, for the disbursement of public money, or any other service or duty whatever, unless the same shall be authorized by law and the appropriation therefor explicitly set forth that it is for such additional pay, extra allowance, or compensation."

After the passage of this act, Mr. Nelson, as Attorney-General, held that collectors might receive compensation for superintending light-houses, because there was an appropriation for such compensation, and it came within the exception.

There is no such appropriation for the disbursement of moneys under the direction of the Topographical Bureau.

The act of 1842 was intended to put an end to extra allowances or compensation to officers receiving fixed pay or emoluments, unless Congress in the appropriation explicitly provided for it.

The introduction of this strong language, in lieu of that employed in the act of 1839, indicates very clearly the meaning and purposes of the law. A collector being such

an officer, and there being no appropriation explicitly setting forth that he may be employed and compensated by the War Department for disbursing money appropriated for topographical purposes, I am of opinion that the War Department cannot employ and compensate him for such service, even to the extent of the act of 1822.

I have the honor to be, respectfully, sir, your obedient servant,

J. Y. MASON.

To the SECRETARY OF WAR.

[Inclosure 5.]

SENATE CHAMBER,
August 10, 1846.

SIR: The Attorney-General having given an opinion upon the questions submitted to him by you in March, 1845, upon the claim of Major Ripley for compensation as superintendent of the Springfield Armory, which opinion is that Major Ripley is by law entitled to the compensation claimed, I have the honor to request that his accounts for that service may now be adjusted, and I hope after so long a suspension it may be done without delay.

I have the honor to be, with great respect, your obedient servant,

GEO. EVANS.

Hon. WM. L. MARCY,
Secretary of War.

[Letters to W. D., vol. 9, p. 40]

ORDNANCE OFFICE,
Washington, August 13, 1846.

SIR: In the estimate from this office for the fiscal year ending 30th June, 1847, the sum of \$128,361 was asked for repairs and improvements at Harper's Ferry Armory, and a statement was made of the several items going to make up this sum, among which was the following: "For the purchase of the lots and improvements as described in Schedule A, hereto appended, \$50,261."

The whole of this \$128,361 is appropriated by the act passed on the 8th instant, but the Second Comptroller of the Treasury is of opinion that no part of it can be expended in the purchase of the lands mentioned in consequence of the 7th section of the act of 1st May, 1820, entitled "An act in addition to the several acts for the establishment and regulation of the Treasury, War, and Navy Departments."

As this item of \$50,261 is not made a distinct appropriation in the act of 8th instant, he has advised, however, that the subject be submitted to you in order that the opinion of the Attorney-General may be asked whether the appropriation of the whole amount of the estimate in this case does or does not authorize the purchase of these lots, which opinion I respectfully ask may be obtained.*

I consider it proper in this connection to state that most of the purchases of land for armories and arsenals since the passage of the act of 1820 have been made upon authority obtained in this way, by being estimated for and the amounts of the estimate embraced in the appropriation acts.

I have the honor to be, &c.,

G. TALCOTT,
Lieutenant-Colonel of Ordnance.

Hon. W. L. MARCY,
Secretary of War.

*The appropriation for repairs, improvements, and new machinery at Harper's Ferry Armory passed September 8, 1846, cannot, nor can any portion of it, be applied to the purchase of the land described in the estimate made at the Ordnance Office. Although a portion of the appropriation was asked for with a view to the purchase of land, Congress saw fit to specify the purposes for which it granted it, among which the purchase of lands is not included.—4 *Opinions Attorney-General*, 533.

[326—W.—1846].

FORT PICKENS, *August 29, 1846.*

SIR: The armament of this fort being completed (except six guns yet to arrive), it will require at least one man to assist the ordnance sergeant in taking care of the large amount of property on hand.

I have now a man hired, and it is found that he has full employment for every moment. I request your authority to continue this man at work and that funds be remitted to me to pay him; he has been getting (and I shall continue him at the same until I hear from you) one dollar a day and a ration. He says, if continued permanently, he will remain for \$20 a month and a ration. I think under any circumstances the interest of the service would be promoted by this arrangement. At present my company cannot afford a man for the purpose. There are but 14 men for duty, and 5 are indispensable for the extra duty of the post, leaving but 9 for guard, police, and all other work, of which a great deal is to be done.

Respectfully, your obedient servant,

JNO. H. WINDER,
Commanding Post.

Col. GEO. BOMFORD,
Ordnance Corps.

[First indorsement.]

ORDNANCE OFFICE, *September 7, 1846.*

The inclosed letter of Captain Winder is respectfully submitted to the Adjutant-General for his opinion and instructions.

Captain Winder is mistaken in supposing that the ordnance sergeants are attached to this department, and that they are aided in their duties by men hired or otherwise provided by this office. The commanding officer of the fort is immediately in charge of the armament and responsible for its condition. So also in regard to all other ordnance stores issued to the troops.

The care of the armament of the forts would seem to be the regular and not extra duty of the garrison. This department has never sent its enlisted or hired men to the forts to have care of the armament.

Suppose the commander of every fort were to undertake to hire men to take care of its armament!

WM. MAYNADIER,
Captain of Ordnance, in charge of Ordnance Bureau.

General R. JONES,
Adjutant-General.

[Second indorsement.]

It is very extraordinary that Captain Winder should employ a civilian to take charge of the *armament* of the fort under his command. For what purpose is the work garrisoned by a *company of artillery* if not, among other things, for the special purpose of protecting all the public property collected there? This object will be entirely defeated if the commanding officer be allowed to hire *citizens* to do the duty; and, so far as the question of economy is concerned, the troops might as well be withdrawn. Captain Winder should be charged with the expense already so unnecessarily incurred.

Respectfully returned to the Colonel of Ordnance.

R. JONES,
Adjutant-General.

ADJUTANT-GENERAL'S OFFICE,
September 9, 1846.

[Miscellaneous letters, vol. 37, p. 350.]

ORDNANCE OFFICE,
Washington, September 11, 1846.

SIR: Will you cause this office to be informed what is the construction put upon paragraph 889, General Regulations, in regard to the authority of officers to issue orders to the arsenals at this time? You will perceive that the paragraph gives all general and field officers authority *in time of war* to issue orders to the arsenals for arming troops. The armament of the fortifications, both in war and peace, is reserved to the Secretary of War.

Does the reason of the regulation apply to all officers now on the Atlantic stations, and have they authority to order issues from the arsenals?

This office supposes it is not so considered, inasmuch as requisitions for the troops up to this time have been submitted to the headquarters of the Army, from which the orders have come to this office. Colonel Gates lately made an order direct to Captain Williamson, at Charleston Arsenal, for ordnance stores for Fort Moultrie. This office instructed Captain Williamson that orders for the armament of the forts required the sanction of the Secretary of War, and that Colonel Gates's requisition must take the official channel through your office. More recently, Colonel Gates has sent Captain Williamson an order to issue ammunition to two companies of his command, which Captain Williamson has declined to obey. Colonel Gates had been instructed by you to make requisitions for the ammunition he required, meaning, of course, and what it was not necessary to specify, the usual requisitions in the prescribed official form and channel. Either this instruction from your office, or the regulation 889, Colonel Gates has construed into authority to issue orders to the arsenal.

Very respectfully, &c.,

WM. MAYNADIER,
Captain of Ordnance, in charge of Ordnance Bureau.

General R. JONES,
Adjutant-General, United States Army.

[170—A—1846.]

ADJUTANT-GENERAL'S OFFICE,
Washington, September 12, 1846.

SIR: In reply to your inquiry of yesterday's date, as to "the construction put upon paragraph 889, General Regulations, in regard to the authority of officers to issue orders to the arsenals at this time," for arming troops, &c., I have to inform you that all requisitions for ordnance, except for the troops operating against Mexico, are required as usual to be transmitted to this office for the decision of the General-in-Chief. It is true, as you remark, that the regulation in question gives "any general or field officer" authority *in time of war* to issue orders *direct* for arming and equipping his command, but the *reason* of the regulation is obvious. It is intended to provide for emergencies admitting of no delay. Such emergencies are not likely to arise from the existing hostilities with Mexico on the *Atlantic stations*, and hence the reason of the regulation does not apply to the commanders of these stations.

If Colonel Gates gave the order to Captain Williamson, to which you

allude, under the supposition that he was authorized to do so by the present relations of the country, he has misconstrued the intention of the regulations (par. 889). A copy of this letter will be sent to him for his information and future guidance.

I am, sir, very respectfully, your obedient servant,

R. JONES,
Adjutant-General.

To COLONEL OF ORDNANCE,
Washington.

[177—A—1846.]

ADJUTANT-GENERAL'S OFFICE,
Washington, September 24, 1846.

COLONEL: Your letter of the 10th of September has been received. In my letter of the 12th instant to the Colonel of Ordnance, it was stated that, if you gave an order to Captain Williamson to issue certain ordnance stores, under the supposition that you were duly authorized to do so in consideration of the existing war with Mexico, you had misconceived the case, and the reason of the rule found at paragraph 889, Army Regulations.

Captain Williamson certainly erred in not obeying the orders given him by his superior, who was himself responsible to a higher power. This principle of strict obedience to the orders of officers in command must be rigidly enforced. If juniors be allowed to refuse obedience to their superiors in rank, the discipline of the Army and the public interest cannot fail to be impaired. If the orders be unlawful the remedy is plain, and the superior who gives them would, without fail, be called to account by the proper authority.

A copy of this letter will be sent to the Colonel of Ordnance for the information of Captain Williamson.

I am, sir, very respectfully, your obedient servant,

R. JONES,
Adjutant-General.

COL. WM. GATES,
Third Artillery, Fort Moultrie, S. C.

[175—A—1846.]

TREASURY DEPARTMENT,
SECOND COMPTROLLER'S OFFICE,
September 15, 1846.

SIR: I have received your letter of the 12th instant in relation to certain expenditures for stationery, &c., by the superintendent of the Springfield Armory.

In the absence of any regulation by the head of the department as to the amount and description of stationery to be allowed to any agent or superintendent in the performance of his public duties, it is certainly competent for the accounting officers to exercise their discretion upon charges for disbursements of this character.

Whatever may be necessary in the transaction of the business of his office should be allowed and paid by the government; but any extravagance, in kind or quantity, should be repressed by a disallowance of the excessive items. But little difficulty, I think, can exist in ascertaining

with sufficient precision what amount of clerical duty is required at any particular agency or post, or what would be a reasonable allowance of stationery. I consider the account of the superintendent at Springfield in the first and second quarters of 1846 as prodigal in this respect, and am of opinion that a considerable portion of it should not be admitted without further explanation or authority for the purchases.

The two clocks charged in these accounts *may* be necessary in that armory; but as the purchase is an extraordinary expenditure, the necessity and authority therefor should be shown. The same remarks apply to the disbursements for improving the grounds with trees, guano, &c. Such improvements are not among the ordinary official duties of an armory superintendent, and should have the sanction of the department before payment. The approval of the Chief of the Ordnance Bureau upon these accounts, though entitled always to the highest respect, does not conclude the action of the accounting officers or render it their duty also to sanction them. Receiving, as they frequently do, efficient aid from the preliminary examination in the proper bureau, they have still to exercise an independent judgment upon all accounts coming officially before them; to reject what they may deem to be illegal or extravagant, and to guard the Treasury from the admission of improper claims.

I am, very respectfully, yours,

ALBION K. PARRIS,
Comptroller.

J. M. McCALLA, Esq.,
Second Auditor.

[Miscellaneous letters, vol. 37, p. 363.]

ORDNANCE OFFICE,
Washington, September 28, 1846.

SIR: The Second Auditor has sent to this office a copy of your letter to him of the 16th instant, on the subject of certain expenditures at Springfield Armory. If the opinions which you express in that letter prevail, all official authority, it is apprehended, over the disbursements of the Ordnance Department, will be withdrawn from this office and transferred to the accounting officers of the Treasury. It is therefore necessary that I should state to you what I consider to be the authority of this office (under the War Department) over its officers in their disbursements of public money, an authority which it has exercised without question till this time. You express to the Auditor the opinion that the "*accounting officers are to exercise their discretion*" over all disbursements not exactly prescribed by a regulation of the head of the department, meaning, I suppose, the War Department. On the contrary, I have always considered that in the ordnance disbursements all necessary discretion, all administrative and executive discretion, resides in the head of the Ordnance Department, limited and controlled by the orders and regulations of the Secretary of War, which orders and regulations the accounting officers enforce in the settlement of accounts, and that no such discretion or authority, in the absence of regulations, belongs to the accounting officers. I have considered that the office of these accounting officers is to audit and settle accounts according to law and regulations; that they have no discretion, but that the proper legal discretion in disbursements belongs to the department to which the law has confided the disbursement. I do not, therefore, think it competent

to the Auditor to say that in his "independent judgment" an expenditure is unnecessary or "extravagant," and according to his "discretion" he will allow or disallow it. These discretionary powers would carry with them the actual control of all the operations of the staff of the Army, and render the Treasury officers responsible for all the expenditures of the Army, for the expenses of the Florida war, and of this Mexican war. Can the Comptroller say now to the Quartermaster-General of the Army that "excessive and unnecessary" means of transportation have been provided for the campaign in Mexico, or "that extravagance" is detected in the line of steamboats, which he will not sanction; and, in all these matters, control that department which the law has charged with these duties; or, if some discretion in these things must be lodged somewhere, is it not as safely confided to the executive authority and the disbursing department as it would be if placed in the auditing offices of the Treasury?

It is admitted that the decision of the Comptroller, as to the *legality* of expenditures, is final; that, in his authority to decide all questions of law which arise in the settlement of accounts, he is "independent," and his judgment is not to be revised and reversed, except by the courts of law; that, in applying the law and the regulations to the settlement of accounts, he has a right to *suspend* them, and call on the disbursing bureaus for explanations and statements of facts. But it is not admitted that he has authority and discretion to *reject* accounts for disbursements made according to law and regulations, and the discretion which properly resides in the executive and disbursing departments, because, in his opinion, such discretion has been unwisely exercised, and because the expenditures are injudicious or extravagant; in other words, to set aside the discretion of the department, and apply his own discretion.

If such were the case, the officers of the staff should, in all their disbursements, apply for instructions to the Comptroller instead of, as now, applying to the head of their department; since, finally, it is the Comptroller, in his "independent judgment and discretion" who is to control the disbursements. If in this case the accounting officers possessed the discretion which you ascribe to them, it is not seen how they could intelligently apply it. If they are to prescribe what amount of stationery may be provided or expended at an armory, they may also regulate the expenditures of every other kind; they may say how much *barrel-iron* shall be purchased or used. If they have the discretion in one case, they have in all cases, and are bound to exercise it, and in all cases are equally responsible for its judicious and intelligent exercise.

In the supervision of the accounts of its officers, which this office is required to make by regulations, and in its approval or disapproval of expenditures, it has always been considered, as in the discharge of its proper official authority, not as merely performing the office of adviser to the Auditor, even though he may consent to receive the advice with respect.

In regard to these particular accounts at Springfield Armory, since you suggest that they are extravagant, I will cause them to be again examined in this office, and if it shall again appear to this office that the expenditures are proper, and if it shall also appear to you that they are legal, and to the Auditor that the accounts are correct as matters of account, it is hoped you will order them to be admitted.

I am, sir, &c.,

WM. MAYNADIER,

Captain of Ordnance, in charge of Ordnance Bureau.

A. K. PARRIS, Esq.,

Second Comptroller of the Treasury.

[516½, W. D., 1846.]

ORDNANCE OFFICE,
Washington, October 15, 1846.

SIR: It has been made the duty of the Ordnance Department to supervise the condition of the armament of each fort and make the necessary repairs.

Hitherto it has been practicable to obtain aid from the several garrisons, but the troops having been withdrawn from almost every post, leaving only an ordnance sergeant at each, some aid is indispensable, and I respectfully propose that from two to five enlisted ordnance men, according to the importance and extent of the post, be placed at each fort to be employed in the preservation of what strictly pertains to its armament.

Respectfully, &c.,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Hon. WM. L. MARCY,
Secretary of War.

[Indorsement.]

The within recommendation is approved, and measures will be taken to carry it out.

W. L. MARCY.

OCTOBER 15, 1846.

[502, W. D., 1846.]

ORDNANCE OFFICE,
Washington, October 21, 1846.

SIR: Referring to the 11th section of the act supplemental to an act providing for the prosecution of the existing war between the United States and Mexico, I have to state that, in my judgment, the public service requires an addition to the enlisted force of the Ordnance Department of two hundred and fifty men.

The additional duties at the arsenals and the necessity for a force of this kind with the armies in the field demand this increase. I therefore request your authority to make it.

This increase of the enlisted force at the arsenals will replace many of the hired men now employed, and is in addition to those already authorized for the care of the armament of forts whose garrisons have been withdrawn.

Respectfully, your obedient servant,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Hon. WM. L. MARCY,
Secretary of War.

[Indorsement.]

Approved:

W. L. MARCY.

OCTOBER 23, 1846.

[Miscellaneous Letters, vol. 37, p. 411.]

ORDNANCE OFFICE,
Washington, October 29, 1846.

SIR: Lieutenant McNutt, in charge of the ordnance depot at Fort Polk, reports to this office that Michael Mintz, an enlisted man of ord-

nance, who died at that post on the 2d October, was not buried by the commanding officer of the post with funeral honors, as prescribed in the Army regulations, and which were paid at Fort Polk to all other deceased soldiers.

As the enlisted men of ordnance belong to the Army of the United States, are subject to the rules and articles of war and to military discipline and service, I deem it due to them that when they are killed or die in the service they should be buried with the marks of respect paid to other soldiers.

I am, sir, &c.,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

To the ADJUTANT-GENERAL OF THE ARMY.

[204 A, 1846.]

ADJUTANT-GENERAL'S OFFICE,
Washington, October 30, 1846.

MAJOR: The colonel of ordnance having reported that Michael Mintz, an enlisted man of that department, who died at Point Isabel the 2d instant, was not buried by the commanding officer of the post with funeral honors as prescribed in the regulations, the General-in-Chief has given the following decision on the subject, which is respectfully communicated for your information and guidance:

The enlisted men of the Ordnance Department, being also subject to the rules and articles of war, are a part of the Army of the United States, although not liable to the ordinary duties of the garrison and field. Accordingly, when they die, their remains are entitled to be buried with the honors due to the soldiers of the line on their decease.

I have the honor to be, Major, very respectfully, your obedient servant,
W. G. FREEMAN,
Assistant Adjutant-General.

Maj. J. L. GARDNER,
Fourth Artillery, Commanding, &c., Point Isabel, Texas.

[Letters to Ordnance Officers, vol. 8, p. 318.]

ORDNANCE OFFICE,
Washington, October 31, 1846.

SIR: On the receipt of your letter of 3d instant, relative to the burial of laborer Mintz without honors of war, the attention of the Adjutant-General was called to the subject, and he has, under date of 30th instant, addressed a letter to Maj. J. L. Gardner, commanding Point Isabel, communicating to him the decision of the General-in-Chief in the premises, which is as follows:

The enlisted men of the Ordnance Department, being also subject to the rules and articles of war, are a part of the Army of the United States, although not liable to the ordinary duties of the garrison and field. Accordingly, when they die, their remains are entitled to be buried with the honors due to the soldiers of the line on their decease.

I am sir, respectfully, &c.,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Lieut. J. McNUTT,
Fort Polk, Point Isabel.

ORDNANCE OFFICE,
Washington, November 10, 1846.

SIR: I have the honor to submit the following statement of the operations of the Ordnance Department during the past year, taking up the subjects in the same order as in my last annual report:

FUNDS.

Amount, as by last report, undrawn from the Treasury on the first of July, 1845	\$464,734 52
In hands of disbursing officers, same date	36,954 74
Amount of appropriations for the fiscal year 1846, including the standing appropriation for arming and equipping the militia	1,152,596 85
Received during the year from sales, rents, and for damages to arms in the hands of troops	41,802 58
Total	1,696,088 69

Amount of expenditures during the year	\$1,396,782 86
In hands of disbursing officers, June 30, 1846	61,737 93
Remaining in the Treasury undrawn, June 30, 1846	237,567 90
	1,696,088 69

ARMAMENT OF FORTIFICATIONS:

Out of the appropriation for this object there has been expended, during the fiscal year, the sum of \$273,294.18. The principal articles procured by purchase and fabrication are the following, viz: 126 sea-coast and garrison cannon, different calibers; 76 ten and eight-inch columbiads; 393 sea-coast and garrison gun carriages, complete; 46 sea-coast and garrison upper carriages; 81 sea-coast and garrison chassis; 20 twelve-pounder truck carriages; 11,187 cannon-balls of different calibers; 4,285 shells of different calibers; 21,994 grape-shot of different calibers; 32 twenty-four pounder spherical case-shot; 7,858 cubic feet of timber for casemate and barbette carriages.

Arrangements have been made, within the year, for procuring a further supply of gun-carriage timber, to the amount of about 87,000 cubic feet. The necessity for having at the arsenals deposits of gun-carriage timber on the most liberal scale, will be obvious when it is stated that at least three years' seasoning is absolutely necessary before it can be used for constructions of this kind; and it is much improved by having five years' seasoning. It is good policy and economy to keep the arsenals supplied with this kind of timber to the full extent of their capacity for its proper storage and preservation, and to increase those means where required by the erection of permanent timber storehouses. There have been ordered to the different fortifications during the past year, 199 sea-coast and garrison guns, 30 ten and eight inch sea-coast howitzers, 70 flank howitzers, and 64 columbiads; in all 363 pieces of heavy ordnance; also, 533 casemate and barbette gun-carriages, nearly all of which orders have been complied with, and the rest are in rapid progress of execution. Work on account of armament of fortifications has lately been partially suspended in consequence of the more pressing demands for arms, ammunition, and other ordnance supplies for the troops in the field; and the estimate under this head for the next fiscal year does not contemplate its resumption to anything near the capacity of our arsenals of construction.

The minute inspection of the metal of iron ordnance, which was received before the establishment of our present regulations for the gov-

ernment of founders employed in its fabrication by this department, has been continued during the year, and is still in progress. The report of the officer having the immediate superintendence of this work, which is conducted under the general directions of Colonel Bomford, is appended, and will show fully what has been done in this matter during the year. Prior to the adoption of the present regulations, there was no other test for iron cannon but the powder-proof, which experience has shown cannot be relied on. The strength, density, and character of fracture of the metal are now examined, and constitute a regular part of the inspection. Since ordnance officers have been stationed at foundries, and had the immediate supervision of the casting of cannon, their quality has been greatly improved; indeed, it is believed that not a single bad gun has been received. All the cannon previously cast are being classified according to quality, with the purpose of replacing such as are inferior by those of known strength.

ORDNANCE, ORDNANCE STORES, AND SUPPLIES.

The expenditures from the appropriation under this head during the fiscal year have amounted to \$133,965.88. The principal articles procured by purchase and fabrication are as follows, viz: 40 6-pounder bronze guns; 9 12 pounder bronze howitzers; 24 6-pounder field carriages, complete; 4 12-pounder mountain howitzer carriages, complete; 16 caissons; 8 traveling forges; 4,000 6-pounder cannon-balls; 4,000 12-pounder shells; 186,863 pounds of canister shot; 4,000 spherical case shot, 12 and 6-pounder; 150 Colt's carbines and pistols; 16,105 cartridge-boxes, musket, carbine, and pistol; 24,316 cartridge-box, waist, and saber belts; 9,150 bayonet scabbards and frogs; 12,780 gun slings; 11,466 brushes and picks; 250 rifle pouches and belts; 1,007 pairs of holsters and caps; 250 saber knots; 407 carbine swivels; 4,001 rounds of ammunition for field artillery; 778,180 cartridges for small arms; 751,390 percussion-caps; 3,080 cannon percussion locks, repaired; 3,000 cubic feet of timber for field carriages.

There have also been procured during the fiscal year, by purchase and fabrication at the arsenals, the following ordnance supplies, paid for out of the appropriation for "Mexican hostilities": 8 siege carriages; 14 siege mortar beds; 1 caisson; 4,067 cannon-balls of different calibers; 772 shells of different calibers; 12,282 rounds of ammunition for siege and field cannon; 2,707,383 cartridges for small arms; 350,428 percussion-caps; 100,000 cannon percussion primers; 55,203 pounds of gunpowder; 2,900 complete sets of infantry accouterments.

PURCHASE OF SALTPETER AND BRIMSTONE.

During the fiscal year there has been expended out of this appropriation the sum of \$42,224.96. It has been applied to the purchase of 100,000 pounds of refined sulphur and 484,848 pounds of refined saltpeter. The stock of these materials, which has been provided and laid up in store during several years past, now amounts to 3,368,681 pounds of saltpeter and 734,560 pounds of sulphur. With the additional quantity of saltpeter to be procured from the balance of the appropriation on hand, there will be a sufficient stock of these articles to make 5,000,000 of pounds of gunpowder. I have not asked for funds to increase this supply, deeming the quantity on hand sufficient, and taking into consideration the possibility of the success of a discovery which, it is said, will supersede the use of gunpowder.

NATIONAL ARMORIES.

The expenditures at these armories during the fiscal year have been as follows, viz:

	Harper's Ferry.	Springfield.	Total.
For the manufacture of arms, including appendages, component parts, gauges, tools, &c., and the purchase of materials for the same	\$213, 126 60	\$175, 614 84	\$388, 741 44
For repairs, improvements, and new machinery	22, 487 01	41, 722 56	64, 209 57
	235, 613 61	217, 337 40	452, 951 01

There have been made during the same period the following number and kinds of arms, appendages, &c., viz: At Harper's Ferry Armory 12,203 percussion muskets, with 25,545 pieces of appendages for the same, comprising screwdrivers, wipers, ball-screws, spring vices, extra cones and picks, and 700 percussion rifles, with 1,136 pieces of appendages; also, 2 pattern rifles and 3 complete sets of verifying gauges for the new model rifle for the use of government contractors. At Springfield Armory 14,265 percussion muskets, with 30,378 pieces of appendages. Besides these, there were many component parts of arms completed and in different stages of fabrication at each of the armories, some of which were issued to the arsenals and to the troops in the field for repairs, and others remained in the workshops to be assembled afterwards into complete arms.

For a more particular account of the manufacture of arms, and of other work done at the armories, I refer to the statements from their respective commanding officers accompanying this report. The total estimates for these establishments for the next year, whilst they contemplate full employment in the manufacture of muskets and rifles, are nearly one-third less than the amount appropriated at the last session of Congress.

The act making appropriations for the support of the Army for the year ending on the 30th June, 1847, approved 8th August, 1846, included under the general head of "repairs and improvements and new machinery" at the Harper's Ferry Armory, the whole amount which had been specifically estimated for, item by item, by this department. Among these items was one, "For the purchase of the lots and improvements [at Harper's Ferry Armory], as described in schedule A, hereto appended, \$50,261." A question having arisen as to whether any part of the appropriation as made by the act could be legally applied to the purchase of the lands described in the estimates, the subject was referred by you to the Attorney-General for his opinion. That officer, in reply, states that he "deems it safest to advise that the money estimated for the purchase of lands at Harper's Ferry shall not be used until the sanction of Congress is given in more explicit terms." A similar item occurs in the estimate for repairs and improvements at Springfield Armory, viz: "For the purchase of a lot adjoining the armory ground on the hill, containing about one acre, \$3,500." The whole amount estimated for, including this item, was also appropriated. But, under the opinion of the Attorney-General in the case of the Harper's Ferry appropriation, neither of these sums has been called for from the Treasury. As both these appropriations were based on estimates, which specifically set forth the objects to be accomplished by them, it was not anticipated that this difficulty would arise, and I have to request

that measures may be taken to obtain the sanction of Congress to the application of these sums already appropriated to the objects specified in the estimates. See Doc. No. 9, H. R., first session Twenty-ninth Congress, pages 110 and 111, item 8 of Springfield Armory, and item 19 of Harper's Ferry Armory, in connection with the act making appropriations for the support of the Army for the year ending on the 30th June, 1847.

ARMING AND EQUIPPING THE MILITIA.

From the appropriation for this object there has been expended during the fiscal year the sum of \$186,169.41. The principal articles obtained by purchase and fabrication at the arsenals are as follows, viz :

50 6-pounder bronze guns; 50 field carriages; 1,600 muskets; 3,040 rifles (2,700 percussion, 340 flint lock); 1,600 carbines; 3,000 sabers (2,000 cavalry, 1,000 horse artillery); 1,500 swords (1,000 artillery, 500 non-commissioned officers'); 10,508 cartridge-boxes (infantry, carbine, and pistol); 22,150 belts (cartridge-box, bayonet, waist, and saber); 9,350 bayonet scabbards; 6,235 gun slings; 3,050 brushes and picks; 250 rifles pouches and belts; 1,000 copper rifle flasks; 944 pairs of holsters and caps; 500 carbine slings and swivels; 750 saber knots.

An apportionment of the arms due to each State and Territory, under the act of 1808, is annually made at this office according to the number of effective militia included in the latest returns from each; and issues are made, to the amount of the apportionment, in such arms and equipments of the prescribed models as the proper authorities may designate in their requisitions. Statements A and B, hereto appended, exhibit the last apportionment and issues to the States and Territories. It will be seen, by reference to the former statement, that many of the returns are of old dates. There is every reason to believe that these do not exhibit the present effective militia force of the States, although they necessarily regulate the apportionments, being the only data by which they can be made. Some States in this way lose a portion of the arms and equipments to which their military force, if properly returned, would entitle them; but as this is caused solely by negligence, it can be remedied without difficulty by proper attention. Applications are not unfrequently made for the issue of arms to States whose quotas have already been delivered, and even where they have drawn in advance. Issues have sometimes been ordered and made on such applications. It is difficult, when this indulgence is granted in one case, to refuse it in another. Every such issue furnishes a precedent for another call; and if not stopped, there is a possibility of its becoming the rule instead of the exception. It is virtually anticipating an appropriation, and I recommend that all issues of arms in advance of dues, under the law of 1808, be prohibited, and, if necessary, that legislation on the subject be requested.

Statement C, hereto annexed, shows the quantity and kind of arms, ammunition, and other ordnance supplies furnished to the troops in the United States service during the year ending 30th June, 1846.

As this statement is prepared only for a report of operations during the fiscal year, and as the calls on this bureau since that period have been frequent and extensive, I deem it proper to state that all the different corps operating in the field, as well as the two expeditions to the Pacific, have been supplied with artillery, small-arms, ammunition, and other ordnance stores. The various articles which have been furnished are too numerous to state in detail. The principal are as follows :

40 seacoast and garrison cannon (32 and 24 pounders), 28 field and siege cannon, and 10 siege mortars, with carriages, implements, and

equipments; 14 caissons; 5 battery wagons; 9 traveling forges; 102 sets of artillery harness for four horses; 1,878 10 and 8 inch shells; 4,000 rounds of ammunition for garrison guns; 14,720 rounds of ammunition for field and siege guns; 12,429 muskets; 3,421 rifles; 5,440 carbines and pistols; 3,218 sabers and swords; 21,706 sets of accoutrements—infantry, rifle, and cavalry; 3,778,278 cartridges for small-arms; 600 barrels of powder.

ARSENALS AND DÉPÔTS.

The amount expended from the appropriation for "arsenals" during the fiscal year is \$89,021.23. It has been strictly applied to the execution of the objects set forth in the estimates on which the appropriations were based. These objects were, in general terms, repairs and preservation of public buildings, grounds, and inclosures; erection of new and additions to old buildings, wharves, &c., and all additions and improvements at the arsenals of a permanent character. A more particular account of the work done under this head at the principal arsenals will be found in the statements of their commanding officers appended to this report. The establishments permanently and exclusively in charge of this department are two national armories, four arsenals of construction, sixteen arsenals of repairs and deposit, and four depots—not including the temporary depots required for the supplies of the armies in the field. The estimate for "arsenals" for the next year has been confined to objects considered the most important. It is less than one-third the amount appropriated last year.

None of the items of the estimate for the ensuing fiscal year have special reference to a continuance of the war with Mexico, that branch of the service being left for such special estimates as may hereafter be required.

It is also made the duty of this department to inspect and keep in repair the armament of the fortifications; to repair the arms of troops in service; and to provide, keep, and preserve in good order all ordnance, small-arms, ammunition, and other "ordnance stores" required for the land service. These arms and other military stores are placed at the arsenals and depots in different parts of the country—so distributed amongst them as it is thought will best secure their safety, and at the same time be most convenient to meet the wants of the service, so far as they can be foreseen. The armament of the forts in Pensacola Harbor having been reported at the last inspection as requiring extensive to receive ordnance officer was sent there to superintend them, and also repairs, and place in position such guns and carriages as were wanting to complete the armament of this important point on the Gulf coast. The gun carriages, which were much decayed on account of the climate, and more so from their having been prepared, on an emergency, from timber not well seasoned, have been fully repaired, and the whole armament of this harbor put in complete order for service. Extensive repairs have been also made to the armament of the forts on the approaches to New Orleans; and those in New York Harbor have had their armament repaired, so far as it was required.

The regular examination of all articles in store at the arsenals and armories has been made and the annual inventories prepared and forwarded to this office. These inventories show each article that has been received at any arsenal during the year and how obtained; each article that has been taken therefrom and how disposed of; with the number or quantity of each remaining on hand and its money value. Those for

the year ending 30th June, 1846, exhibit the following aggregates of value in money:

Lands, magazines, storehouses, quarters, barracks, workshops, and machinery	\$3,954,028 21
Artillery of every description, with carriages, implements, and projectiles	2,000,469 59
Small-arms of every description, with their appendages and accouterments	8,154,445 99
Ammunition of all kinds, including powder and materials for its manufacture	679,345 35
Component parts of artillery, carriages, and equipments, and of small-arms and accouterments	349,837 31
Gins, carts, implements, and tools of every description in use or current service	282,584 01
Unwrought materials and tools in store	564,916 14
Total	15,985,626 60

There has been no delinquency during the year on the part of any officer or agent of this department in accounting, agreeably to law and regulations, for the public money or property in his charge, except in a single instance.

The number of enlisted men of ordnance was by the last returns received, viz, for September, 298. Under the 11th section of the act approved June '18, 1846, an increase of the enlisted force has been authorized for service at the arsenals and in the field, as also a small force to be employed at forts where the garrisons have been withdrawn in the preservation of their armament. Those serving at arsenals will replace many of the hired men whom it has heretofore been necessary to employ in consequence of the limited number of enlisted men authorized by law, and their pay will be less than that of hired men. Besides economy, there are other and more important advantages resulting from the employment of enlisted men. The duties of the workshops, laboratories, and magazines require skill and practice, and the term of service of enlisted men will enable the department to secure those qualifications for field service, or wherever they are needed, and to retain them so long as they are wanted; whereas a hired artificer cannot be transferred from one post to another, or sent into the field, or kept on any service not agreeable to him. There has not been sufficient time since the increase was authorized to enlist the number required, and a portion only has been put on service with the troops in the field.

The serious inconvenience which I have frequently experienced in promptly and efficiently meeting demands for the services of officers of this department makes it my duty to recommend an organization of the Ordnance Corps, with the same number and grades of officers as are now authorized for the Corps of Engineers, and the addition of three military storekeepers to take charge of minor arsenals and depots; thus releasing the officers now stationed at them, for more active and useful duties. In support of this recommendation I offer the following reasons: The Ordnance Corps now contains, agreeably to the supplemental act of July 7, 1838, twenty-eight officers. The act of the 5th July, 1838, made the organization of the corps to be thirty-six officers. The reduction with some other retrenchments in other parts of the Army was carried in the supplemental bill on the ground of economy, although at the expense of a suitable provision for the wants of the service at that time. The national armories, then superintended by civil officers, have since been placed by law in charge of ordnance officers, and should have for their proper management at least four, if not six officers. When the present organization of the Ordnance Department was made the

fabrication of ordnance at the foundries was under the exclusive management of the proprietors of these establishments, this department having no other control over them than to inspect and prove their work when finished. It resulted from this that much of the ordnance was made of just good enough quality to stand the proof tests, but not fit for service afterwards. The only remedy was a personal superintendence by skillful officers of all the operations connected with the manufacture of ordnance, from the selection of the metal to the finishing and reception of the guns. The five foundries at which ordnance is fabricated require the constant services of at least five officers, besides one to direct and supervise the operations at all and to see that uniformity in the mode of fabrication and the patterns of the guns is preserved. The increased value of the ordnance thus obtained will much more than counterbalance the expense of the additional officers, to say nothing of the moral effect on the troops, from increased confidence in their arms, and preventing the hazard of life so often caused by the bursting of imperfect guns. These duties, added since the last organization, thus called for the services of 12 more officers than were provided by the act of 5th July, 1838; and if the number then proposed was no more than enough for the service at that time, which is believed to be the fact, there should be now 12 more, or 48 officers. The number by the organization above proposed would be 43, and by the additional storekeepers make available the services of three now confined to minor arsenals. The proposed organization will only substitute 6 first lieutenants and 6 second lieutenants for the 9 brevet lieutenants or more which now are or may be attached to the corps; and add one lieutenant-colonel and two captains. A certain organization by law is preferable to the mode of supplying the necessary number of officers by attaching brevet lieutenants. The additional expense per annum which will result from the proposed organization is as follows, viz:

Pay and emoluments of one additional lieutenant-colonel	\$2,040 00
Pay and emoluments of two additional captains.....	2,748 00
Pay and emoluments of twelve lieutenants	12,935 52
	<hr/>
	17,723 52
Deduct the pay and emoluments of ten brevet lieutenants, the usual number that will be attached to the corps, and who, in the proposed organization, may be dispensed with	10,779 60
	<hr/>
Amount of additional expense per annum	6,943 90

The foregoing reasons do not refer to the present additional requirements of the services of the ordnance officers *in the field*, but to those which are permanent and constitute the regular duties of this department, charged with the preparation and custody of everything necessary to arm and equip the military force of the country—regular, volunteer, and militia; as also the armament of the fortifications.

MINERAL LANDS.

I have now to present the subject of the mineral lands, which have been under the charge of this bureau since 1821.

Mines in the Galena district.

In this district, which embraces the mineral lands of Jo Daviess County, in the northwest corner of the State of Illinois; those in Wisconsin, lying south of the Wisconsin River; and those in the county of Dubuque, in Iowa, it has been the practice to lease to applicants such tracts as they might desire, for the most part not exceeding forty acres,

for the term of one year, and to renew these leases from time to time if the conditions have been complied with.

The 518 leases stated in my last annual report as having been granted during the year which ended 1st of October, 1845, consequently, had all run out by the 1st of October of the present year; but a large portion of them had expired and been renewed, or the same tracts leased to others, before the passage of the act of 11th of July last, or rather before the 24th of that month, when the superintendent received the order from this office directing him to grant no more leases.

The number returned as granted during the year just passed is shown by the following table:

Date.	Illinois.	Wisconsin.	Iowa.	Total.
October, 1845	23	48	1	72
November, 1845	37	26	2	65
December, 1845	28	9		37
January, 1846	61	31		92
February, 1846	49	7		56
March, 1846	32	33	1	66
April, 1846	39	20		59
May, 1846	43	21		64
June, 1846	32	30		62
July, 1846	26	22		48
Total	370	247	4	621

After the orders of July were made known, representations were received stating that the lessees, whose times were daily expiring, complained that unless they could obtain renewals of their leases to run to the day of sale, their diggings would be constantly liable to intrusion; and the superintendent urged that it would add greatly to his success in obtaining the balances of rent due, if he could be allowed to grant leases to run to the day of sale. As there was no doubt on the part of this office that if the renewals were refused, the lessees, or those who might trespass upon them, would continue to dig without rendering any returns of their diggings or paying any rent therefor, the subject was brought to your notice; and, with your sanction, the superintendent was authorized to extend such leases as would expire before the day that might be fixed by the President's proclamation for the sale of these lands, so as to make them run to the day of sale. It appears, however, by returns recently received, that the superintendent did not confine himself strictly to these instructions, but granted during the month of September forty-three new leases in Illinois, and eleven in Wisconsin, to run to the day of sale, of which only twenty-four were renewals to the same parties.

The number of pounds of mineral reported by the lessees as having been dug by them from 1st October, 1845, to 1st October, 1846, is	8,820,652
Pounds of pure lead which this should yield, at 70 per centum, which is the average yield of the mineral from these mines	6,174,456
Pounds of pure lead due thereon as rent to the United States, at 6 per centum	370,867
Add balance due on operations of 1845, per last annual report	155,289
	526,156
Pounds of lead received in kind	98,540
Pounds of lead received in money	283,830
	382,370
Leaving balance due	143,786

Receipts from these mines within the year, as above stated, 93,540 pounds of lead, at say \$3 per 100 pounds.....	\$2,956 20
233,830 pounds paid for in money, at an average say of \$2.92 $\frac{1}{10}$	8,297 56
This amount collected on balance due prior to 1841.....	273 98
	<hr/> 11,527 74

CONTRA.

For salaries, per centum on collections, fees of counsel, and costs of court, and miscellaneous expenses of all kinds allowed and paid within the year.	5,733 59
Leaving the net proceeds for the last year	5,794 15

The expense of these lead mines to the United States, and the receipts therefrom, have been extensively misunderstood, if not misrepresented. To place the subject right before the public, a statement in gross of all receipts and expenditures under this head from the year 1821, when the supervision of the mineral lands was transferred to the Ordnance Department, to the 30th of September, 1846, is given herewith.

Whole quantity of lead received for rents, and actually shipped to Saint Louis Arsenal, from commencement of operations in 1821 to 30th September, 1846, 5,317,249 pounds; at an average say of \$2.90 per 100 pounds, is equal to	\$154,200 24
Cash received in lieu of lead	12,287 36
	<hr/> 166,487 60
Deduct whole amount of expenses, including salaries and contingencies of every description, during the above time	81,585 53
Leaving a net balance of	84,902 07

Mines in the south part of Illinois.

In the last annual report it was stated that ten permits had been issued, which authorized selections of tracts of not exceeding one section each, with a view to granting leases of three years' duration for the tracts so selected; but that no such leases had, up to that time, been granted. Three more permits of the same description were granted in the month of November last, and two leases were granted prior to last of January, in conformity with the terms of the permits. But as it became necessary in the month of December to withdraw the military storekeeper, whom my last report spoke of as having been temporarily assigned to these mines, no returns have ever been received of the operations under them, and these lands have been proclaimed for sale under the act of 11th July last.

Mines in the State of Arkansas.

No leases or permits have ever been granted for the mines in this State, from a continuance of the causes mentioned in my last annual report, and they have all been proclaimed for sale under the act of 11th July last.

Mines of Lake Superior.

The last annual report stated briefly the causes which led to the leasing of mineral tracts in this district, and spoke of the twelve (12) leases for tracts of three miles square which were granted in 1844 for the term of three years each. In that report, and its accompanying tabular statements, it was shown that 65 permits to select tracts of three miles square, and 825 for tracts of one mile square were granted between 1st of November, 1844, and 17th of July, 1845, when the further issue of them was suspended. These permits all stipulated that leases should be

granted for the tracts selected, in conformity with the conditions therein stated; and the report further showed that twenty (20) leases for the three-mile square tracts and sixteen (16) for the one-mile tracts had been accordingly granted.

From the date of that report to the 6th of May last these permits continued to be returned with the selections described thereon; and twenty-six (26) further leases for tracts of three miles square, and 301 for tracts of one mile square had been granted; making in the whole, from 13th May, 1844, to 6th May, 1846, fifty-eight (58) leases for tracts of three miles square, and three hundred and seventeen (317) for tracts of one mile square. On the last-named day all further issue of leases was suspended, in conformity with a decision of the President of the United States, made in consequence of a doubt which had been raised whether the existing laws authorized the leasing of *copper* mines.

It had been the practice of this office to prepare the leases in duplicate, and send them to the parties claiming them, accompanied by a form of bond for the fulfillment of the conditions; and when both copies of the lease, together with the bond, were returned to this office executed on the part of the lessees, then to lay the leases before you to be executed on the part of the United States; and when so executed, to return one of the copies of the lease to the persons interested. In pursuance of this course there had been prepared and sent out four (4) further leases for tracts of three miles square, and ninety-nine (99) for tracts of one mile square; and although the whole of the first description and sixty-two (62) of the second have been returned executed on the part of the lessees, yet, not having reached this office till after the 6th of May above-mentioned, they have remained unexecuted on the part of the United States. Two hundred and seventy-eight (278) of the outstanding permits have also been returned, with the description of tracts selected certified thereon, but for which the leases have not been prepared, and one hundred and eleven (111) of the permits have not yet been returned.

Special permissions for removing the ore from this mineral region to other parts of the United States, for the purpose of being smelted, have been granted since the last annual report, as follows:

30th May, 1846.—To the New York and Lake Superior Mining Company, as assignees of leases Nos. 18, 20, 21, 31, and 32.

30th June, 1846.—To the Copper Falls Company, as assignees of lease No. 9.

6th July, 1846.—To the Eagle Harbor Mining Company, as assignees of lease No. 3.

14th July, 1846.—To the Pittsburg and Boston Copper Harbor Mining Company, as assignees of leases Nos. 4, 5, and 6.

16th July, 1846.—To the Northwest Copper Mining Company, as assignees of lease No. 222.

The five last named of these permits contained an additional condition, that if said companies would pay to the United States superintendent at Sault Ste. Marie, upon the arrival of the ore at that place, the per centum thereof due to the United States, it should exempt said companies from all claim at the place of smelting, as previously conditioned. Representations having been made that many of the permittees who had not succeeded in obtaining their leases, as well as other persons who were on the ground without any authority whatsoever, were preparing to dig and remove ores out of the country, it was thought best to further authorize the superintendent to allow the ore so dug to pass, provided the persons having it in charge would pay him the per centum in kind, or its estimated value in money.

The following is a statement of the ores shipped and per centum paid, prepared from the returns received from time to time at this office :

When shipped.	Number of the lease.	Pounds of ore, freed from its matrix, shipped from each tract.	Pounds of native copper shipped from each tract.	Pounds of ore paid as per centum at Sault Ste. Marie.	Amount of money paid as per centum at Sault Ste. Marie.	Remarks.
October and November, 1845	2	7,813	700			This was paid at Washington in March, 1846, by T. M. Howe.
June to September, 1845	4	33,515			\$192 22	
May, 1846	4	11,445				Ohio and Isle Royale Company. No lease. American Exploring Company. No lease. Mr. Arnold. No lease. Union Mining Company. No lease. Mr. Talbot. No lease. Platt Card. No lease.
May to September, 1846	5	636,894		7,590		
June to September, 1846	2	5,675	10,122			
June and July, 1846	9	7,465				
July, 1846	18	853				
July, 1846	20	3,469				
August, 1846	49	400			96	
August, 1846	158	1,329			4 77	
August and September, 1846	3	54,868	8,786	2,044		
July to September, 1846		9,225			11 72	
August and September, 1846		807	106		1 84	
August, 1846		70			63	
August, 1846		1,325			3 18	
September, 1846			70		84	
September, 1846		581			66	
Total		775,734	19,784	9,634	216 82	

The expenses paid during the same time for salaries and contingencies of all kinds have been \$20,994.67, a large portion of which was for arrears due for the previous years. But the expenses of the explorations and surveys, in anticipation of those of the General Land Office, which were necessary for the early operations in this region, having now in a great measure ceased, and your orders of 25th of August for reducing the number of persons in employ having been carried into effect, the cost of this agency hereafter will be greatly reduced. The only salaried officers now remaining are the following : John Stockton, superintendent, Sault Ste. Marie, \$1,500 per annum ; one clerk to superintend Sault Ste. Marie, \$600 per annum ; A. B. Gray, assistant superintendent, Copper Harbor, \$1,200 per annum ; W. A. Eliason, sub-assistant, Ontonagon, \$600 per annum ; and as the mining operations are being gradually brought to a condition to yield a profit to the miners, the per centum to government may be expected to increase.

The representations received from this region since my last annual report continue to show the utmost confidence on the part of the miners, and the constant development of valuable mines ; but the stop which has been put to the granting of further leases and the doubts existing as to the authority for leasing copper mines has produced a negligence on the part of the miners in reporting their operations to the government agents. It is further represented that a large portion of Isle Royale is occupied by persons who have gone there avowedly with the purpose of mining without any shadow of authority from the government, but who expect to have their titles confirmed, notwithstanding

the provisions of the act of 4th of September, 1841, which expressly reserved all lands on which known mines are situated from the operation of the pre-emption laws.

Mines of the Mississippi, above Prairie du Chien.

The whole number of permits granted for the selection of mining tracts in this district, with a view to leasing the same, from 3d June, 1844, to 29th November, 1845, when the further issue of them was stopped, was two (2) for 3 miles square; six (6) for 3 square miles; and ninety-one (91) for one square mile. The last annual report stated that one of those for 3 miles square expired without any report of a selection under it, and that the other being contested the lease had been refused. The six for 3 sections each have still continued unacted on. Sixteen only of the one-mile permits have been returned to this office; and several of these were followed by protests of persons claiming pre-emption rights to the land selected; and as the President's order of 6th May last was received before any decision could be made, no leases have ever issued for any of the lands in this district.

G. TALCOTT,
Lieutenant-Colonel of Ordnance.

To the SECRETARY OF WAR.

Statement of the principal operations at the arsenals during the year ended June 30, 1846.

* * * * *

WASHINGTON ARSENAL.

In my last annual report I stated that machinery for making lead balls by compression was in the course of construction at this arsenal. The machines were completed and put in operation early in the year, and about two millions and a half of balls have been made with them. The lead for these balls is cast in cylindrical iron moulds, 20 inches long, the diameter of the bar being a little less than that of the ball to be made. This cylindrical bar or ingot, after being straightened, is passed through a press furnished with two hemispherical dies, by means of which is formed a string of balls connected together by a thin rim of lead. To separate the balls from the ingots, they are passed through a trimming machine, consisting essentially of a hollow punch, or thimble, which is pressed down over the ball by the action of an eccentric, the ball resting in a die or cup, from which it is thrown out by a spring below.

Both the press and the trimming machine are worked by means of the steam-engine; they run at the rate of about 100 to 120 in a minute. Three men are required to cast the bars; one man or boy tends the press, and a boy the trimming machine. With this force 40,000 balls are made in 10 hours.

These machines are copied, with some modifications, from those invented by Messrs. Lewert, of Berlin, drawings of which are contained in the collection of drawings relative to the Prussian artillery, published by the government.

Similar machines have been made here for the arsenals at Watervliet and Saint Louis. The cost of the whole apparatus for making musket and rifle balls is about \$500 a set.

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A. MORDECAI,
Captain of Ordnance.

ALLEGHENY ARSENAL.

Experiments were made at this arsenal during the year, by order of Colonel Talcott, to test the expansion of eight-inch solid shot in heating. The following table shows the observations:

In conducting these experiments, the shot were heated to a bright red heat, measured, and allowed to cool down to a cherry red, when they were measured again and allowed to cool entirely; after which, five were again brought to a bright red and measured, and again measured after having become entirely cool.

TABLE OF EXPERIMENTS.

Number.	Marked diameter before heating.	Marked diameter at a bright red.	Marked diameter at a cherry red.	Greatest diameter at a bright red.	Greatest diameter at a cherry red.	Marked diameter after cooling.	Expansion at a bright red.	Expansion at a cherry red heat.	Marked diameter at a bright red—2d heating.	Marked diameter after cooling from 2d heating.	Remarks.
1	7.848	8.010	7.960	-----	-----	7.910	.162	.112	-----	-----	Beginning to melt at first heat.
2	7.848	7.970	7.950	-----	-----	7.880	.122	.102	7.990	7.900	
3	7.827	7.980	7.945	8.020	8.013	7.880	.153	.118	8.010	7.995	
4	7.829	7.985	7.960	8.020	7.990	7.880	.156	.131	8.000	7.905	
5	7.885	8.030	8.010	8.030	8.010	7.950	.145	.135	8.055	7.935	
6	7.822	7.970	7.925	7.990	7.960	7.860	.148	.103	8.040	7.960	Beginning to melt at first heat.
7	7.822	7.995	7.970	7.995	7.970	7.910	.163	.138	-----	-----	
8	7.840	7.960	7.945	7.960	7.945	7.860	.120	.105	-----	-----	
9	7.824	7.995	7.960	8.010	7.990	7.885	.171	.136	-----	-----	
10	7.856	8.010	7.995	8.010	7.995	7.920	.154	.139	-----	-----	
11	7.845	8.000	7.980	8.035	8.012	7.900	.155	.135	-----	-----	Beginning to melt at first heat.
12	7.848	8.000	7.985	8.000	7.985	7.920	.152	.137	-----	-----	
13	7.820	7.955	7.940	7.980	7.965	7.850	.135	.120	-----	-----	
14	7.857	8.000	7.975	8.000	7.975	7.925	.143	.118	-----	-----	
15	7.880	7.975	7.960	8.020	8.005	7.895	.145	.130	-----	-----	
16	7.825	7.985	7.950	8.000	7.980	7.885	.160	.125	-----	-----	Beginning to melt at first heat.
Mean .....							.149	.123	-----	-----

E. HARDING, *Captain of Ordnance.*

FORT MONROE ARSENAL, COMMANDED BY CAPTAIN HUGER.

The principal experiments made at this arsenal during the past year are—

1st. Experiments with 10 and 8 inch columbiads, to test the proper kind of fuses for their shells, and to ascertain the performance of these guns and carriages.

2d. Trials made with a percussion primer offered by Mr. Ashard, of New York.

3d. Experiments with a new fuse proposed for service of field artillery, and particularly for spherical case-shot.

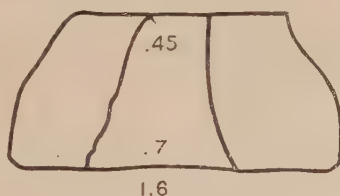
4th. Experiments with 10-inch seacoast mortar—heavy, principally to test strength, &c., of its bed.

Buildings erected, &c.

No. 1.—Summary of firing with 10-inch columbiad, on barbette carriage.

Charge of powder.	Kind of fuse.	No. of shells found after being fired.	No. of fuses burned.	No. of fuses failed.	
				Not burned.	Fuses out of shell.
18 pounds..	Brass plug, with shoulder, driven into fuse hole; fuse in paper case.....	14	14	0	0
18 pounds..	Common wood fuse.....	4	3	1	0
18 pounds..	Wood plug, with fuse in paper case, and brass ring and cup.	3	2	1	0

* The brass plug, without a shoulder (in 10 inch shell of 2-inch metal, without reinforce at fuse hole), was driven into the shell and mashed into shape thus:



Summary of firing with 8-inch columbiad on casemate carriage.

Charge of powder.	Kind of fuse.	No. of shells found.	No. of fuses burned.	No. of fuses failed.	
				Not burned.	Fuses out of shell.
10 pounds..	Brass plug, &c.....	53	41	12	0
10 pounds..	Wood plug, &c.....	24	12	6	6
10 pounds..	Common wood fuse.....	13	7	4	2

Of the number which failed to burn most were of a very slow composition. Composition which burns four or five seconds to the inch seems very certain.

The plug and fuses used were described in last report; and from these experiments it appears that the brass plugs used, which were turned to fit the fuse hole tightly, and driven into it with a sledge, will answer very well to hold the fuse made in a paper case, as in these trials not one of the brass plugs was knocked out. The shells were all fired at low angles, over water, for 2,000 yards, and then they passed over a point of land covered with trees. Many shells struck these trees; a 10-inch shell, at 2,604 yards, cut down a pine tree over 2 feet diameter. The shells had no charges in them; all that could be found were recovered, brought back to the arsenal, and the fuses carefully examined. Some shells were fired several times over.

The 10-inch carriage is very inconvenient to handle and difficult to maneuver. The 8-inch casemate carriage works very well, and is maneuvered with the same ease as the 42 or 32 pounder.

Agreeably to instructions received, a series of experiments were made with a primer for firing cannon presented by Mr. Ashard, of New York. In the primer first offered the ignition of powder in a priming tube was caused by breaking a glass tube containing sulphuric acid in contact with a composition, which immediately took fire.

Mr. Ashard afterwards omitted the acid; and his primer is a bent tube, one branch of which enters the vent and is filled with powder, the upper branch with percussion powder, which is exploded by a blow from a hammer. It differs from the English percussion primer only by the tube being made of *paper* instead of *quill*. When made *carefully* they fired the charge with but few failures—say not exceeding 4 per cent.

No. 3.—*Experiments with fuses for field artillery, &c.*

The plan of using fuse composition driven into paper cases for columbiads suggested the idea that it might be applied with advantage to field artillery. The common wood fuses now used are driven long enough for the longest range, and sent with the ammunition to the battery, where, when required for use, they are sawed off to the proper length, and then driven into the shell. This operation of driving the fuse does not allow the ammunition to be “fixed,” and the cutting and driving fuses on the field must cause delay, and be inconvenient and uncertain.

A series of experiments have been made here, and the following method adopted for field ammunition:

The 12 pounder shell and spherical case-shot and 6-pounder spherical case-shot were prepared by driving into the fuse hole a hard-wood plug with an opening through it; this opening is partially closed by driving, and must be reamed out afterwards with a reamer exactly the size of the paper case containing the fuse composition. The case is cut one inch long, and the composition varied so that this same length of fuse burns different times.

1. Black case, 1 inch long, burns 2" to the inch.

2. Green case, 1 inch long, burns 3" to the inch.

3. Red case, 1 inch long, burns 4" to the inch.

The spherical case-shot being first filled with musket-balls, and the plug driven in, as above-described, the bursting charge is put in, and the opening stopped with a pellet of tow, which can be easily removed. At the instant of firing, the fuse composition, in its paper case of the required color, is inserted. If this fire proves that it is not correct, the next length can be inserted the succeeding fire. The advantages gained by this kind of fuse over our present are—

1st. As the fuse is inserted, at the moment of firing, without driving (the plug having been previously driven), the cartridge can be attached to the shot; that is to say, the ammunition for shells and spherical case-shot can be fixed as it is for round-shot. This is more convenient, and gives greater expedition in loading; and in the howitzer is a great advantage, for in these guns the length of the chamber is less than the diameter of the bore; so that, in loading, the cartridge sometimes gets turned in the bore and lies across instead of joining into the chamber. When the cartridge is fixed to the shot this difficulty is entirely obviated.

2d. The ammunition being thus fixed and the fuses ready, shells and spherical case can be fired as rapidly as round-shot.

3d. The fuses being cut off at both ends, their lengths are exactly the

same; and the composition being the same, they burn equal times. With the wooden fuse heretofore in use, the same lengths did not give as nearly equal times, which I attribute to the fuses not being driven up exactly to the same point.

4th. From the short plug being used, a greater number of balls can be put *into* the spherical case shot. A 12-pounder will hold 82 balls of 17 to the pound, instead of 72 of 18 to the pound; which furnishes a greater number of projectiles to cause injury at the end of their flight, and the greater weight improves the range of the shell.

There have been fired, from 12-pounder howitzer and 6-pounder gun, 123 rounds of shell and spherical case-shot. All of the fuses were observed to blow or explode the shell but seven.

In the last forty fires of this number, there have been no failures to explode the shell.

The following is a table of firing with 12-pounder howitzer, with spherical case-shot, in one day:

Number.	Elevation.	Charge.			Fuse.	
		Powder.	Powder in shell.	Balls in shell.	Kind.	Time.
A target 45 feet long, 8 feet high, at 600 yards from platform of gun—the foot of target 2 feet higher than the surface of platform.						
1	3°	1	4	68	Paper case ..	2½
2	3½	1	4	68	Block	2½
1	3	1	4	68	do	1¾
10	3	1	4	68	do	2
14						
With an elevation of 3 degrees, the shell generally burst about 10 feet above the ground. The first shell, having a fuse of 2½", burst at some distance in rear of the target; but all the others burst within a rectangle of 100 feet in length by 50 feet in breadth.						

Two shells and 158 bullets and fragments of shell struck front of target—160 hit. I see no difficulty in applying these fuses in service, and I think they will prove a decided improvement.

Further improvements since the beginning of July have confirmed the favorable impressions here made of them.

BENJAMIN HUGER,
Captain of Ordnance.

WATERTOWN ARSENAL.

Under the direction of Colonel Bomford, a barbette carriage for a 12-inch columbiad gun has been constructed at this arsenal.

The gun for which this carriage was constructed weighs about 26,000 pounds. Its ordinary service charge is a cartridge of 25 pounds of powder, with a cartridge-block 1½ inch thick, and a shell 190 pounds, with a sabot 3 inches thick. In the construction of the carriage for the gun the following objects were sought to be attained: strength and solidity to withstand the shock of the discharge, space for recoil without too great length of the chassis, accuracy of fire, and facility in maneuvering a piece of such extraordinary weight; and it is believed that all those objects have been completely accomplished in the carriage in question. Six men can maneuver the gun in battery without difficulty; the chasis, fourteen feet long, permits all the recoil required; a shell is thrown with great accuracy, and after repeated discharges the carriage remains unimpaired.

The peculiarities of the carriage will be better exhibited by the drawings and model to be forwarded to the department than by any state-

ment, however detailed, without such illustration. A very tolerable conception of them may, however, be conveyed to those acquainted with the construction of the 10 and 8 inch columbaid barbette carriages by stating that, though in general outline it resembles the carriages referred to, it differs from them in having four truck wheels instead of two to the top carriage; that those wheels being placed on axletrees having eccentric arms, are thrown in or out of *gear* (made to bear the weight of the gun or otherwise) as required by means of handspikes inserted in holes made in the outer end of the axletree arms for that purpose. The gun being "*to battery*" the wheels are thrown out of *gear*, and the top carriage slides, instead of rolls, on the chassis when the gun is discharged. When it is required to run the gun "*to*" or "*from battery*" the wheels are thrown into *gear* (made to lift the top carriage), and in that situation it can be run *from battery* by inserting the handspikes into the holes made for that purpose in the face of each wheel and heaving on them; or it can be run *to battery* by merely shoving the top carriage with the hands.

An endless chain, running on two rollers furnished with cogs made to suit the chain links, one of which is placed near the front transom, and the other in the rear of the rear transom of the chassis and between its rails, the latter roller having a pinion and ratchet moved by cranks, was introduced in the construction of the carriage to supply the power which it was thought might be required to manage the gun with facility.

The chain can be attached to or detached from the top carriage by means of a catch made to fall on or lift from it by an eccentric journal passing through the rear transom of the top carriage, turned by means of a handle which appears on the outside of that transom, convenient for the adjustment of the catch. This arrangement secures the movement of the gun *from battery* by the application of the force of four men to the cranks, but will probably hereafter be found superfluous. The front and rear transoms of the upper carriage descend two inches below the superior surface of the chassis rails, and their ends, as also the inside of the rails, are guarded by friction plates two inches wide. By this arrangement, which prevents any lateral movement of the upper carriage on the chassis, accuracy is secured in the horizontal line of fire.

The upper surfaces of the rails of the chassis are planes instead of being curved, as in the 10-inch carriage, and have a rise of but three inches in ten feet. Each rail has two friction plates on its surface; one to prevent the wear of the wheels, and the other the friction of the plate secured under the tie of the top carriage from impinging upon the wood of the former. The rails are 14 inches deep by 16 wide, and were constructed of 8 pieces of timber and plank each, for want of larger seasoned stuff.

The chassis traverses on a bolster and pintle placed under the middle transom (which is also furnished with a friction plate) and four wheels, two of which are under the front and two under the rear transom. The bolster, the diameter of which is the width of the chassis, is provided, in addition to a plate, with an outer iron circle on which the rails, sustained by the middle transom, traverse, and which supports them under the action of the discharge. The support given to the chassis by placing it under the middle transom and extending it so as to support the rails at that point where the force of the discharge reacts assures accuracy of aim in the vertical field of fire.

The chassis is without hurters; but instead of them, two square-headed bolts through the front transom of the chassis, and two more through

the rear end of the rails, limit the movement of the top carriage on the chassis.

Notwithstanding the great diameter of the base ring of the 12-inch gun (39 inches), the width of its chassis is less than that of the 10-inch carriage, being but 64 inches, or about $8\frac{1}{2}$ inches less than the latter. The axis of the trunnion of the 12-inch gun is but 70 inches from the platform, whilst that of the 10-inch is 76 inches. In the former, 40° elevation can be obtained—in the latter, but 38° .

The elevating apparatus for the gun in question is a modification of that used for the other columbiad guns; but it has been much improved by adapting to it a spiral spring, perfectly simple in its construction and application, and easily removed and restored, which serves to maintain the elevating prop in its proper position. This spring, it may here be observed, has been applied to and tested on one of the 8-inch columbiad carriages, and found to perform its functions perfectly, and much more conveniently than the spring first adopted for the same purpose, last autumn, a particular description of which is not now considered necessary.

In an economical point of view, as well as in all other respects, the former spring has the advantage over the latter. This improvement will appear in the model.

It is believed that Colonel Bomford has attained in this construction a very nearly perfect carriage for heavy guns; to say the least, it has many decided advantages over the 10 and 8 inch columbiad carriages.

* * * * *

J. A. WEBBER,
Military Storekeeper.

EXAMINATION OF IRON ORDNANCE, BY LIEUTENANT WALBACH.

Extract from his report for the year ending 30th June, 1846, of his experiments to test the cannon in the several forts and arsenals of the United States.

Samples for the experiments have been taken from the cannon at the forts and arsenals, as stated in the following table:

TABLE.

Forts and arsenals.	Description of cannon.									Total.
	10-inch seacoast howitzer.	8-inch seacoast howitzer.	8-inch columbied.	42-pounder.	32-pounder.	24-pounder.	18-pounder.	12-pounder.	10-inch mortar.	
Fort Columbus, New York Harbor		5			58	26				89
Castle Williams, New York Harbor				26		18				44
Fort on Bedloe's Island, New York Harbor ..					12					12
Fort on Ellis's Island, New York Harbor		2			10					12
Fort Hamilton, New York Harbor					33	26				59
Fort Lafayette, New York Harbor					72	23				95
Batteries on Staten Island, New York Harbor					37					37
Ordnance depot, New York Harbor	1	25	29	32	50	99				236
Battery of the cadets, West Point, N. Y.		1	2	1		1				5
Fort McHenry, Baltimore, Md		7		19	30	24				80
Fort Macon, Beaufort, N. C						17				17
Fort Caswell, Smithville, N. C						20				20
Fort Moultrie, Charleston, S. C		5			14	16				35
Castle Pinckney, Charleston, S. C		2		4		14				20
Fort Pulaski, Savannah, Ga					20					20
Fort Pickens, Pensacola, Fla					62	56				118
Fort McRee, Pensacola, Fla		10		24	24	64				122
Fort Barrancas, Pensacola, Fla		4			11	10	5	3	2	35
Fort Morgan, Mobile, Ala					64	15				79
Fort Pike, Lake Pontchartrain, La						28				28
Fort Wood, Pass Chef Menteur, La						23				23
Fort Jackson, mouth of Mississippi, La					16	26				42
Baton Rouge arsenal, Louisiana					53	46				99
Allegheny arsenal, Pittsburg, Pa					15	32				47
Washington arsenal, District of Columbia ..		44		73	207	160	1	2		487
Fort Adams, Newport, R. I.					100	42				142
Fort Wolcott, Newport, R. I.						7				7
Total	1	105	31	179	888	793	6	5	2	2,010

To collect this number of 2,010 samples from the cannon, scattered as they were over such an extent of country, together with the transportation of the heavy machines required for that purpose, has necessarily required much time and labor.

The cavity left in the face of the muzzle of the gun, by the abstraction of the specimen for trial, has been carefully filled with composition of sal ammoniac and fine iron turnings, compactly driven in the moist state. This filling, as will be seen in a former report, appears to have sustained both the effects of the weather and the heaviest shocks of firing uninjured, and leaves no trace of disfiguration on the surface of the gun.

The specimens having been carefully marked with the number and caliber of the gun from which they were taken have been reduced, under the lathe, to the requisite form and dimensions, and also to a fixed diameter, preparatory to trial.

Of this number of 2,010 samples so collected and prepared for trial the specific gravity, tensile strength, and character of fracture of 730 of them have been accurately determined, by which tests the quality of the cannon has been judged and the cannon arranged in three classes.

The 1st class are the best guns in service; from the character of the metal a sufficient strength and endurance of the gun may safely be inferred. The 3d class show a bad quality of metal, and are judged to be dangerous and unfit for use. The 2d class are of a doubtful quality.

The cannon thus examined and classified are those in depot and battery at the forts in the harbor of New York, those in battery at West Point, Fort McHenry, Maryland, and the forts in North Carolina, and also the seacoast howitzers along the southern coast and the Gulf of Mexico.

The condensed form of this report will not enable me to insert the classification of the guns belonging to each separate fort; but as the following, from the same foundry, are in sufficient number to afford satisfactory conclusions, I will confine myself to a summary statement of the results obtained therefrom, as shown in the following table:

TABLE 1.

Classification of 589 cannon cast at the West Point foundry.

Class.	10-inch seacoast howitzer.	8-inch seacoast howitzer.	8-inch columbiad.	42-pounder.	32-pounder.	24-pounder.	Total.	Percentage.
1st class	1	23	31	21	173	64	313	53.14 per cent.
2d class		9		15	65	98	187	31.75 per cent.
3d class		1		23	34	31	89	15.11 per cent.
Total	1	33	31	59	272	193	589	100.00 per cent.

These experiments demonstrate the value of existing regulations of the Ordnance Department for the government of private foundries in the fabrication of cannon.

Under the former system of inspection, the greatest discrepancies existed even among the cannon of the same date and from the same foundry; yet, since the Ordnance Department has established the present regulations, and required the personal attendance of its officers during the fabrication of the cannon contracted for, not only does a marked uniformity prevail in the character of the guns of any one foundry and date, but also among those from different foundries, and throughout the entire period since 1841.

In order that this fact might be more clearly exhibited, I have drawn up the following table, wherein I have classified 589 cannon from one foundry into periods, the divisions being marked by the changes observed in the quality of the metal, and the striking relation of those changes to the periods or dates within which the guns were cast:

TABLE 2.

Summary of the classification of 589 guns cast at the West Point foundry from 1826 to 1845.

FIRST PERIOD.		<i>Taking the 2d and 3d classes as one.</i>		
From 1826 to 1834 (inclusive), during which 327 cannon were cast, consisting of 32 and 24 pounders.	1st class,	68.50 per cent.	1st class,	68.50 per cent.
	2d class,	30.28 per cent.	2d and 3d class,	31.50 per cent.
	3d class,	1.22 per cent.		
		<u>100.00</u>		<u>100.00</u>
SECOND PERIOD.				
From 1835 to 1839 (inclusive), when 174 cannon were cast, viz : 8-inch seacoast howitzers, 42, 32, and 24 pounders.	1st class,	4.02 per cent.	1st class,	4.02 per cent.
	2d class,	47.70 per cent.	2d and 3d class,	95.98 per cent.
	3d class,	48.28 per cent.		
		<u>100.00</u>		<u>100.00</u>
THIRD PERIOD.				
From 1841 to 1845 (inclusive), there being 88 cannon cast, comprising 10 and 8 inch howitzers, 8-inch columbiads, 42 and 32 pounders.	1st class,	100.00 per cent.	1st class,	100.00 per cent.
	2d class,	0.00 per cent.	2d and 3d class,	0.00 per cent.
	3d class,	0.00 per cent.		
		<u>100.00</u>		<u>100.00</u>

This table contains, in a summary form, the substance of the foregoing remarks. The great difference of the per centage for the 2d and 3d periods is strikingly apparent. The system commenced with, appears tolerably good until the great change is observed subsequent to 1834. From this time, and up to 1840, including the entire period marked 2d in the table, a very great deficiency in the quality of the gun exists; and for the probable cause of this depreciation we may look to the introduction of the hot-blast iron. A very striking improvement, however, is evident among the cannon cast under the revised regulations since 1840, which condemned the hot-blast iron, and required, among other restrictions, the personal supervision of ordnance officers during the fabrication of the guns. Since that period not a single bad gun has been passed into the service, and the great uniformity in the character and quality of the metal affords evidence of a correct and systematic mode of treatment.

The following facts indicate the value of this method of proving cannon :

1st. During the examination of the cannon at Fort Monroe, Virginia, in the spring of 1845, it occurred that in a series of 32-pounders, numbered by the inspector from 354 to 370, inclusive, and cast at the Bellona foundry, eight of the seventeen, or nearly 50 per cent., were not on hand. The result of the trials upon the nine others showed that not one of them could be rated as first-class gun. The officer in charge having informed me that none of the guns of that series had been issued from his post, it became necessary to refer to the department for information in the matter, and on the records of the Ordnance Office the following account of these missing guns was found :

Extract from the report of the inspectors of ordnance, dated August 7, 1834.

No. of gun.	Burst—		Remarks of the inspectors.
	1st fire of the proof.	2d fire of the proof.	
354	1	The founder ascribes the failure of his guns to excessive proof charges. The inspectors entertain a different opinion, and ascribe the result to a defect either in the metal or in the manner of working it, in which they were sustained by the nature of the fractures. Specimens were preserved, and have been since submitted to experienced founders, who without knowing the circumstances, or whence they came, at once decided that the metal was good, but had been injured, and rendered unfit for gun metal in melting and casting. That the result arises from this cause cannot be doubted, when it is remembered that the cannon at the other foundries are subjected to the like proof, and for the last year without failure.
355	Sustained	the proof.	
356	Sustained	the proof.	
357	1	.....
358	1	.....
359	Sustained	the proof.	
360	1	.....
361	Sustained	the proof.	
362	Sustained	the proof.	
363	Sustained	the proof.	
364	Sustained	the proof.	
365	1	.....
366	Sustained	the proof.	
367	.....	1
368	Sustained	the proof.	
369	1	.....
370	1	.....

W. J. WORTH.

Major of Ordnance and Inspector.

WM. MAYNADIER.

Lieutenant and Assistant Inspector.

The foregoing contains, within itself, an almost entire chapter of facts. 1st. It appears that the eight missing guns had all burst during proof, and seven of them at the very first fire. 2d. That although the other nine did sustain the proof, yet, without the knowledge of the foregoing facts, they were, eleven years afterwards, on the application of the tests in question, decided to be of bad or doubtful quality. They were no doubt of the same material, cast under the same system, and also at the same time with the others, though by accident, possibly had just strength enough to sustain this proof, although, in my opinion, they were not sufficiently strong to stand the few next fires of the service charge. I have therefore classed them as unserviceable, not doubting that the correctness of this decision will at some subsequent period be practically and satisfactorily proved. 3d. This case confirms the necessity of the order of 1840, which requires the rejection of the entire order or contract, when 25 per cent. of the number furnished shall have failed under the proof. 4th. It is evident that, under the present proof by powder, some of the worst guns may burst, yet others will pass into the service incapable of sustaining even a moderate degree of firing. It is also apparent that, had the method I am now employing been in use at that period, not one of the guns in question would have been received from the founder; and this consideration has suggested to me the substitution of a more direct and practical test instead of the proof by powder, which suggestions I have already noticed in a previous report.

2d. Having had occasion to visit the West Point foundry on duty, in August, 1845, I mentioned to the proprietor that certain of his cannon afforded, under the tests applied, every indication of an inferior quality. At his request, I gave him the number of the cannon, which were marked from No. 308 to 337, inclusive. On referring to the records of the foundry the following appeared on his books: "32 pounders, No. 308 to 337 (the identical guns inspected April, 1839), *hot-blast iron*." Here I had, by trial merely upon the specimens taken from the cannon, given him, from among several hundred others, the first and last gun of a certain order or contract; all of which I had decided to be of bad or doubtful quality,

and which the foundry records acknowledge to have been cast from hot-blast iron; a material the use of which has since been wisely prohibited. As a further argument in the case, it appears, from my own books, that gun No. 308, the first of this order, gave under trial a specific gravity of 7.09, and a tensile strength of 20,732 pounds to the square inch, while No. 307, the gun next preceding it in the series, gave a density of 7.185, and a strength of 25,246 pounds per square inch. Gun No. 307, it seems, was cast in 1834, and before the use of hot-blast iron at the foundry; while gun No. 308, cast five years subsequent thereto, was acknowledged to have been fabricated from this obnoxious material.

3d. While engaged in testing the quality of the cannon in the harbor of New York, I found among a series of 42-pounders, cast in 1842 at the West Point foundry, one differing very widely from the quality of the others. Here were 20 cannon, all cast under the revised regulations and under the supervision of an experienced officer, the samples from 19 of them giving the highest values of strength and density, and rated accordingly to the first class; while one of them, numbered 18 in the series, afforded every indication of an inferior quality of iron. In fact, Nos. 17 and 19, the guns immediately preceding and following it in the series, gave as follows: No. 17 a density of 7.23 and a tenacity of 28,631 pounds per square inch, and No. 19 a density of 7.24, and a tenacity of 29,619 pounds, while gun No. 18 gave the very low density of 7.02 with the corresponding low tenacity of 19,323 pounds; a difference, it appears, of 10,000 pounds nearly in the relative strength of these guns.

This fact seemed at once to disprove the accuracy of the system; it was, to say the least, an anomaly, and as such I reported the circumstance to the department. It was supposed at first that I had made an error in marking the specimen, and that it might possibly belong to some gun other than 42-pounder No. 18, of 1842; but being positive to the contrary, I was allowed to refer to the files of the Ordnance Office, where, upon the report of the inspector, the following remarks appeared opposite to this gun, No. 18.

Extract from the inspection report of Major R. L. Baker, of twenty 42-pounder guns at the West Point foundry, dated March 9, 1842:

"No. 18 is reported by the attending officer to have about 20 inches of *bad iron* at the muzzle end, caused by a deficiency of good metal in the furnace."

"Had this inferior quality extended lower down or been nearer the seat of the charge the gun would have been rejected; but being quite near the muzzle, it is not apprehended that the gun can be injuriously affected by it."

It will be recollected that my samples for trial are taken from the muzzle of the cannon. In the present instance, it was therefore from this identical portion of the gun, reported by the inspector to have been of *bad iron*, that I had (in perfect ignorance of this fact) taken out my specimen at least four years afterwards, and had, upon the application of the tests, pronounced an opinion exactly similar to his own.

The foregoing needs no comment; and, taken in connection with the other facts reported, must be regarded as the strongest proof in confirmation of the utility as well as the precision of this method of ascertaining the quality of gun metal.

4th. During the inspection of some Navy 32-pounders, in 1845, at the South Boston foundry, two of them were rejected by the inspector on account of a few cavities or blow-holes on the surface, arising from a defect in the casting. The others stood the proof, and were received. The founder was confident in the superiority of his guns, and knew that the metal of which they were made was of the same quality with those

that had sustained the proof; and as he had to break them up before he could make any further use of the iron, he was determined, in so doing, to make a practical test of their strength. Accordingly, they were submitted to the following very high proof to extremity, and sustained the amount of firing noted in the following table:

Proof to extremity of a 32-pounder Navy gun, at South Boston foundry, in 1845.

Number of rounds.	Charges.			Remarks.
	Powder.	Ball.	Wad.	
4	With 7, 8, 9, and 10 pounds, successively.	1	1	{ Service charges being 4 pounds powder, 1 ball, and 1 wad.
4	.....do.....	2	1	
6	With 9 pounds.....	3 and 4	1	3 rounds with 3 balls, and 3 with 4 balls.
4	With 10 pounds.....	2 and 4	1	1 round with 2 balls, and 3 with 4 balls.
5	With 11 pounds.....	2 and 3	1	3 rounds with 2 balls, and 2 with 3 balls.
5	With 12 pounds.....	2	1	
2	With 13 pounds.....	2	1	
2	With 15 pounds.....	2	1	
15	With 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, and 22 pounds.	6	1	
1	With 23 pounds.....	7	1	This charge filled the bore to within 6 inches of the muzzle.
1	With 24 pounds.....	8	1	This charge filled the bore to within $\frac{1}{2}$ inch of the muzzle.
1	With 25 pounds.....	7	1	Filled the bore.
51	Rounds, and burst at the last fire of this proof.			

From the fragments of this gun samples were obtained, and on being tested by the instruments, gave to a density of 7.23 the extraordinary high tensile strength of 32,000 pounds per square inch, with a character of fracture corresponding to the superior quality of the metal.

5th. A 32-pounder gun was imported from England, in the year 1845, as well for its model as for its supposed goodness of quality. It was subjected to the ordinary foundry proof before being used, but unexpectedly burst at the first fire. Samples of this gun were subsequently tested by the machines, and afforded the following values, namely: a specific gravity of 7.04, and a tensile strength of 18,145 pounds per square inch. The character of fracture was strikingly corresponding to the quality of the gun.

6. While at West Point, during the summer of last year, I took a sample for trial from an old English 24-pounder, a trophy of the last war, which had been used by the cadets in target practice for upwards of fifteen years, and had recently been laid aside from the wearing out of the vent and the fact of its having already done its duty. It is fair to presume that it has sustained upwards of one thousand rounds at least while in use at the Military Academy. This old gun was well known to the service; and its superior quality was subsequently verified and confirmed by my trials upon the sample, which afforded the high value of a tenacity equal to 28,067 pounds per square inch and a density of 7.205; values which, according to my classification, would have placed it high in the first class of guns.

General remarks and conclusions.

In my report of last year, and under the head of conclusions, it was stated that when a gun possessed the properties of tenacity to a high degree, in connection with a certain density and a corresponding character of fracture, its durability might be safely relied on. The results of experiments for the present year have confirmed this opinion.

The following table shows the relation between the strength and density of the metal:

Comparative relation of the tenacity to the density of gun metal, together with the characteristic fracture accompanying the different qualities thereof.

1st. Ten cases affording the highest values of strength and density, as extracted from the records of my examination of a contract of 19 32-pounders, cast at West Point foundry in 1841, every gun of the contract having been rated to the first class on trial.

Description.	Tensile strength. Per square inch.	Specific gravity.	Character of fracture.
32-pounder, No. 1	<i>Pounds.</i> 28,298	7.21	<i>Color.</i> —Light, soft gray, passing into a mottle. <i>Structure.</i> —Close and compact, under a fine and uniform crystalline arrangement. <i>Fracture.</i> —Close and even, not hackley. <i>Hardness.</i> —Of medium resistance to the file and under the lathe. <i>Aspect of turned surface.</i> —Smooth and even, with few and small cavities.
32-pounder, No. 2	28,349	7.20	
32-pounder, No. 3	28,631	7.22	
32-pounder, No. 6	29,378	7.22	
32-pounder, No. 8	29,619	7.21	
32-pounder, No. 9	28,490	7.20	
32-pounder, No. 10	31,734	7.24	
32-pounder, No. 11	31,734	7.21	
32-pounder, No. 15	27,926	7.21	
32-pounder, No. 17	28,208	7.22	
Mean	29,236	7.21	

2d. Ten cases affording the lowest values of strength and density, as extracted from the records of my examination of 30 32-pounders, cast under the same contract at West Point foundry in 1839, every gun of the 30 having been reported by me as of *bad or doubtful* quality.

Description.	Tensile strength. Per square inch.	Specific gravity.	Character of fracture.
32-pounder, No. 311	<i>Pounds.</i> 18,617	7.08	<i>Color.</i> —Dark gray; sometimes of a dull, non-metallic aspect; at other times of a brilliant luster, varying with the size and ag- <i>gregation of its crystals.</i> <i>Structure.</i> —Open and granular, with large stellated crystals irregularly grouped. <i>Fracture.</i> —Rough, uneven, and hackley. <i>Hardness.</i> —Of soft and slight resistance to the file, drill, and under the lathe. <i>Aspect of turned surface.</i> —Rough and un- even, with large stellated and plumose cav- ities, apparently the beds of the crystals removed by the action of the turning tool.
32-pounder, No. 312	19,887	7.08	
32-pounder, No. 316	19,323	7.05	
32-pounder, No. 318	19,887	7.07	
32-pounder, No. 321	19,887	7.04	
32-pounder, No. 324	19,323	7.09	
32-pounder, No. 325	19,404	7.03	
32-pounder, No. 329	19,887	7.04	
32-pounder, No. 332	19,323	7.03	
32-pounder, No. 335	19,323	7.03	
Mean	19,492	7.05	

From this table it appears that not only is there a striking relation between the strength and density of the metal in the same gun, but also that the character of fracture corresponds to the difference of quality. We also perceive that in guns from the same foundry, and constituting a part of two separate contracts, there exists a difference of nearly 10,000 pounds per square inch in tenacity and 0.15 nearly in the density of the metal. Those in the latter part of the table are some of the guns reported as hot-blast; and those comprised in the former part were cast the next after them, at the same foundry, though not until the system had been revised and the officers of the Ordnance Department charged with superintending their fabrication.

Comparative endurance of certain cannon subjected to high and extreme proof, with the value of the tenacity of the metal of each subjoined.

Description of gun.	Specific gravity.	Tensile strength.	Endurance.	Rank of tenacity.	Rank of endurance.
		<i>Pounds.</i>			
6-pounder No. 7, cast at the South Boston foundry in 1844.....	7.213	32, 231	16 rounds, with 2 pounds of powder, and an additional ball at every round; making the 16th charge 2 pounds of powder and 16 balls 4 rounds, with 2½ pounds of powder, and, successively, 13, 14, 15, and 16 balls at a charge 16 rounds, with 3 pounds of powder and 16 balls each; and, finally, 2 rounds, with 6 pounds of powder and 7 balls, and could not be burst, the service charge being 1½ pounds of powder and 1 ball only	1	1
Navy 32-pounder, cast at the South Boston foundry.....	7.23	32, 000	51 rounds, with increasing charges from 7 pounds of powder, 1 ball, and 1 wad, up to 25 pounds, 7 balls, and 1 wad, and burst at the last fire, when filled to the muzzle, the service charge being 4 pounds of powder, 1 ball, and 1 wad	2	2
24-pounder English gun, captured from the British during the late war.....	7.205	28, 067	1,000 rounds and upwards, with service charge, at the United States Military Academy, besides what it might have previously sustained before its capture. The gun has been withdrawn from battery (the vent being worn), and replaced by one of the new model	3	3
18-pounder siege gun, cast at the West Point foundry in 1839, of hot-blast iron.....	7.01	22, 900	51 rounds, service charge; burst during target practice at Fort Monroe, Va., on the 51st round.....	4	4
English 32-pounder Navy gun, imported in 1844.....	7.04	18, 145	1 round, with the proof charge of — powder and ball, and burst at the very first fire.....	5	5
32-pounder No. 61, cast at the Bellona foundry in 184-....	7.03	16, 313	20 rounds, with the service charge 16 rounds, double-shotted, and burst at the last fire	6	6

We will readily perceive from this table the relation of tenacity and density of the metal to the durability of the gun. It will be recollected that I have, in my classifications, assumed 25,000 pounds per square inch as the lowest limit of strength for guns of the 1st class; and hence the three highest guns on the list would have come under this head, while the remainder would have been rated to the 3d class, and very properly recommended for condemnation.

It must be remarked, however, that this uniform relation of the tenacity to the density of the metal does not always occur. There are cases where we find, first, a medium tensile strength to accompany a high

density; and, again, the reverse of this—viz: A low density to a good strength, although in the latter case tenacity is never very high. Such facts, however, instead of throwing objections in the way, only give rise to further investigation; and I have endeavored to account for these exceptions in the following manner:

When a case of the first kind occurs I have noticed that the metal has generally a white aspect, either a very high mottle with the white of a silvery hue or of a uniform, dull, and chalk-like appearance; a circumstance which I have attributed either to its having been too frequently remelted or to its too long continuance in the furnace or to the fact of its having been suddenly cooled from a state of fusion.

In the second case, where we find the low density belonging to a good, though not a very high degree of tenacity, I have uniformly observed that the surface of fracture presents a dark and carbonaceous appearance, but with a very close aggregated crystallization. I have, therefore, concluded that its excess of carbon rendered its density necessarily low, while, by reason of its close structure and the increased number of its fibers, its tensile strength has been greatly augmented. For the cause of this peculiarity we may look to the quantity of its carbon as due either to the nature of the fuel or a deficiency of oxygen in the blast during the course of its treatment in the furnace.

When instances like either of the foregoing have been found I have uniformly classed the gun to which they belonged as doubtful. For if the iron is deficient in tenacity it is evident that the gun cannot possess the requisite strength; and when the density is low the metal, I fear, would be too soft to resist the effects of the ball in firing. In the latter instance, I would suggest that the application of a crushing force be made to the sample. An insufficient resistance to such a force would, I think, indicate its inability to withstand the action of the ball, although the metal might otherwise possess a good degree of tenacity.

CONCLUSIONS.

1st. *The specific gravity of gun metal* has some relation to its tenacity and hardness. Its value varies, for different cannon, between the limits of 6.99 and 7.23. From 7.18 to 7.25 is considered a proper value for a good gun, when accompanied with the other necessary conditions. When it falls below the former limit the metal is too soft and generally deficient in tenacity; and when it exceeds the higher limit it becomes too hard and brittle. It cannot, therefore, be depended on as a sole test, but in connection with the others it may be highly useful.

2d. *The tensile strength* appears to be, in most instances, the surest test of the quality of the metal, when it is accompanied with a proper density and character of fracture.

3d. *The character of fracture* is, to an experienced eye, one of the best indications, and, in the absence of other means, may be of much use. An examination of the *color, structure*, and the form and size of its crystals, together with the appearance of the turned surface, when the fracture cannot be observed, also serve to point out the properties of the metal. For a general description of the character of fracture for the different qualities of gun metal, I refer to table No. 5 of this report.

4th. *The resistance of a crushing force* might be advantageously applied, particularly in the cases wherein the usual relation does not exist between the tenacity and density of the metal. For this purpose I have made an arrangement to the breaking machine, so that the specimen (which is to be half of the sample left after taking the value of its tensile

strength) is properly retained in its position, and the crushing force applied in the direction of its axis. The determination of the ratio of this force to the tenacity and density of the metal, and then, again, its relation to the durability of the gun might afford additional and useful data.

5th. *A depreciation in the quality of the cannon* seems to have taken place within certain periods at all the foundries, and for which see tables Nos. 2 and 3, and the remarks following table No. 3. The cause of this may be assigned 1st, to the introduction of the hot-blast iron; and, 2d, to the mistaken notion that seems to have prevailed with regard to the superiority of soft iron for gun metal.

6th. *A great and decided improvement* has evidently been made under the revised regulations of 1840, relative to the fabrication of cannon. From table No. 2, it appears that for the period of five years preceding this date the number of cannon of a bad and doubtful quality cast at one foundry amounted to 96 per cent.; while, since the castings have been made under the personal supervision of the ordnance officers, not a single gun of bad quality has been made at that or any other foundry.

With great respect, &c.,

L. A. B. WALBACH,
First Lieutenant of Ordnance on Special Service.
G. TALCOTT,
Lieutenant-Colonel of Ordnance.

ORDNANCE OFFICE,
Washington November 10, 1846.

[Extracts from Annual Report of the Secretary of War, 1846. Sen. Doc., 2d Sess., 29th Cong., Vol. 1, Doc. 1, p. 57.]

The burden of increased duties resulting from a state of war has borne heavier upon the Ordnance Bureau, probably, than upon any other branch of the public service connected with this department, except that of the Quartermaster-General. It cannot be expanded so as to meet the super-added demands upon it, without the authority of Congress.

The officer in charge of this bureau has pointed out, in his report, the inadequacy of its present organization, and suggested such an enlargement as will make it efficient in the present emergency. It is proposed to give it the same organization, as to the rank and number of officers, as that of the Corps of Engineers. I am fully convinced that the service is embarrassed in consequence of the deficiency of ordnance officers, and would respectfully renew the recommendation made at the last session for an increase of them. That suggested in the ordnance report would not, in my judgment, be more than the public exigency at this time demands.

As the management of the mineral lands has been devolved upon one of the military bureaus of this department, it is proper that I should briefly notice the subject, so far as relates to the operations of the last year.

From the 1st of October, 1845, to the time when the act of Congress of the 11th of July last became known to the agents of the government, six hundred and twenty-one leases were granted. Of these, two hundred and ninety-two will expire before the earliest day fixed for the sale of the leased land, and the remainder before the first day of August next. The small number since granted will expire on the sale of the premises. The amount of rent received during the year ending the 30th of September exceeds the expenses of management by the sum of \$5,794.15, and the excess of receipts over expenditures for the whole

time the lead mines have been in charge of the War Department is \$84,902.07.

On the 17th of July, 1845, the department suspended the granting of permits for locations in the copper region about Lake Superior, but continued to execute leases on those issued prior to that period until the 6th day of May last, when it was decided by you that the existing laws did not authorize leases for this kind of mineral land. Since the latter period none have been executed. As the mining operations in the copper region have scarcely become productive to the lessees very little rent has yet been received.

The attention of Congress was directed to this subject, and the views of the department suggesting the necessity of legislation thereon, were presented in several communications laid before that body at the last session. The ore in this part of the public domain is rich and inexhaustible, and under proper management might be made to contribute no inconsiderable sum to the public treasury.

[Miscellaneous letters, vol. 37, pp. 435, 460.]

ORDNANCE OFFICE,
Washington, November 19, 1846.

SIR: I respectfully propose (the sanction of the Secretary of War being first obtained) to gather at Fort Monroe Arsenal, partly by drafts from other arsenals and by enlistment of laborers of ordnance, a sufficient number of men to man a battery of mountain howitzers now at that post, and also to form a brigade of rocketers, probably 100 men in all may suffice, but the law governing enlistments for ordnance service being limited only by the discretion of the Secretary of War, any number deemed necessary may be provided. They will of course be commanded by ordnance officers.

Respectfully, &c.

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Major-General SCOTT,
Commanding, &c.

[Indorsements.]

These papers from the Ordnance Office are referred to the Chief Engineer and the Chief of Ordnance, to be discussed and definitely settled between them, subject, in the case of difference of opinion, to my decision.

Two batteries of mountain artillery are recommended to their consideration, and also the appointments.

I think favorable of the proposed rocket-corps; but that also is submitted to the conference.

A brief report of the result, with the tables, is desired for headquarters.

WINFIELD SCOTT.

NOVEMBER 20, 1846.

We approve of two batteries of mountain artillery; we recommend the formation of a rocket company in the Ordnance Corps. The detail of the equipments will be presented as soon as they can be drawn out.

The question of the personnel in the service of the mountain artillery has not been discussed.

J. G. TOTTEN,
Colonel and Chief Engineer.

G. TALCOTT,
Lieutenant-Colonel of Ordnance.

Approved :

WINFIELD SCOTT.

I leave these papers with Colonel Totten for the present. The Ordnance Department will approximate as near as practicable the number of shells.

WINFIELD SCOTT.

NOVEMBER 24, 1846.

ENGINEER DEPARTMENT,
November 24, 1846.

I respectfully hand these papers to the Ordnance Department.

J. G. TOTTEN,
Chief Engineers.

Received from Colonel Totten, 24th November.

G. T.

Approved :

W. L. MARCY.

NOVEMBER 27, 1846.

[526½ W. D., 1846.]

Considering the memorandum of the siege train and ammunition therefor ordered to be placed at New York depot, let the siege train be sent out with the first vessels be composed as follows: 12 24-pounder guns; 5 18-pounder guns; 12 8-inch siege howitzers, or 12 8-inch Paixhan guns on traveling carriages, or 6 of each kind; 40 at least (say 50) 10-inch siege mortars—the castle can be assailed only with these and howitzers, and the only chance (easemated as it is) of producing serious effects will be from unremitting violence of the shower of shells; 10 small mortars or Coehorns—these will be very useful in shelling the enemy out of the stone barracks, churches, &c. Send with these pieces, to be followed if necessary by more, 500 rounds for each gun; 1,000 do. for each howitzer or Paixhan gun; 500 do. for each Coehorn or small mortar; 2,000 do. for each 10-inch mortar. If the bombardment of the castle continues 10 days, which is not an extravagant supposition, each mortar, at 200 rounds per day, will require 2,000 rounds. This will be sharp practice, but sharp practice only will do the work. Cartridges, barrels of powder, port-fire tubes, implements, equipments, ammunition, carriages, gins, tools, materials, harness, &c., in due proportion—at least 6 sling carts.

Planks and timber for all the platforms, each fitted, marked, and numbered; 500 hand-grenades at least; rockets.

JOS. G. TOTTEN,
Colonel and Chief Engineer.

WASHINGTON, November 26, 1846.

Approved :

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

NOTE.—The time allowed and means afforded the Ordnance Department will fix a limit to the extent of supplies. The number of shells is

very great and probably more than can be used with the 40 mortars. I confess that I read the item "2,000 do. for each 10-inch mortar" as being 20,000 shells only.

G. T.

Comply with the above as far as practicable.

W. L. MARCY.

NOVEMBER 27, 1846.

[Inclosure.]

Two captains, two lieutenants, one officer, to be at Point Isabel 30th December, the other on the Rio Grande 15th January, one or two to go with the material from New York; the officer at New York to carefully note the artillery on board of each ship and as far as practicable the part of the ship in which they are stored; the officer on board to know all these particulars.

Battery of mountain howitzers to be officered by ordnance officers, rocket battery also. If a field officer goes, then one captain less.

Memoranda for the Chief of Ordnance: It will be better that the shipping of the whole material of the Ordnance Department should be intrusted to Captain Huger, assisted by several of his juniors. The whole should, if possible, be at the Brazos by the 15th of January; but *extra* shells may be shipped so as to follow the expedition at a short interval. Consult Colonel Totten, who I hope will, as far as he may properly, hasten the boats of embarkation and debarkation.

WINFIELD SCOTT.

NOVEMBER 29, 1846.

[Letters to W. D., vol. 9, p. 104.]

ORDNANCE OFFICE.

Washington, November 30, 1846.

SIR: The proposition which I submitted for the organization of mountain artillery and a rocket-corps having been approved by General Scott and the Secretary of War, I have now to suggest that I receive the official order of the department to equip and send forward one battery of 6 pieces, with such number of ordnance officers and men as may be required for the service of the battery, and with such a supply of rockets as may be found practicable and expedient; and that preparations be made to equip the second battery, as desired by General Scott, when circumstances will permit. I propose, on receiving this order, to equip and send forward the battery from Fort Monroe Arsenal; and I have to request authority to make the usual requisitions on the other departments of the staff for the proper and customary supplies for service in the field; as of subsistence, clothing, camp-equipage, &c.

To facilitate the enlistment of ordnance men for field service, I request authority to pay for enlistments in the Ordnance Corps as in the rest of the Army, the two dollars provided in the order of the War Department dated the 3d November, 1846.

I am, sir, &c.

GEO. TALCOTT,

Lieutenant-Colonel of Ordnance.

Hon. WM. L. MARCY,
Secretary of War.

[Indorsement]

Approved, and the Adjutant General will issue necessary orders.

W. L. M.

DECEMBER 1, 1846.

[234 A, 1846.]

ADJUTANT-GENERAL'S OFFICE,
Washington, December 3, 1846.

COLONEL: The Secretary of War having approved the proposition submitted by you the 19th ultimo to the General-in-Chief for the organization of mountain artillery and a rocket corps, I am directed to say that you will equip and send forward, as early as practicable, one battery of six pieces, with such number of ordnance officers and men as may be required for the service of the battery, and with such a supply of rockets as may be found practicable and expedient. Preparations will also be made for equipping the second battery as desired by the General-in-Chief, when circumstances will permit.

The Quartermaster's and Subsistence Departments will furnish, on the usual requisitions, the customary supplies to enable you to carry out the foregoing instructions.

The regulation of November 3, 1846, allowing a premium of *two* dollars for procuring recruits is considered applicable to the ordnance men enlisted for *active field service* with the mountain artillery and in the rocket corps.

I am, colonel, very respectfully, your obedient servant,
R. JONES,
Adjutant-General.

Lieut. Col. G. TALCOTT,
Ordnance Department, Washington.

[Miscellaneous letters, vol. 37, p. 460.]

ORDNANCE OFFICE,
Washington, December 4, 1846.

SIR: Referring to the last paragraph in your letter to me of yesterday, I have to request that the premium of two dollars for procuring recruits be allowed to "all ordnance men enlisted for active field service, *or for service with the army in Mexico.*" This will apply to those who may serve with siege trains and the artificers and armorers who are sent to the depots of the Army for repairs of arms, field batteries, &c.

I am, sir, &c.,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Brig. Gen. R. JONES,
Adjutant-General.

[237 A, 1846.]

ADJUTANT-GENERAL'S OFFICE,
Washington, December 5, 1846.

COLONEL: The regulation of November 3, 1846, allowing a premium of *two* dollars for procuring recruits, is considered to extend to all ordnance men who may be *enlisted specially to serve with the Army in Mexico.*

I am, colonel, very respectfully, your obedient servant,
R. JONES,
Adjutant-General.

Lieut. Col. G. TALCOTT,
Ordnance Department, Washington, D. C.

[Letters to ordnance officers, vol. 8, p. 383.]

ORDNANCE OFFICE,
Washington, December 4, 1846.

Circular.

SIR: You will receive herewith the form of an advertisement, which you will have inserted conspicuously in one or two papers (with an editorial notice if possible) and posted up in handbill form in your neighborhood.

Such suitable men as can be spared from your post, you will send to Fort Monroe, at once to report to the senior ordnance officer there.

They can be replaced by hired or enlisted men. The men you obtain under the advertisement you will also forward to Fort Monroe, and report to this office the number sent. The usual commutation of subsistence will be allowed, and the Quartermaster's Department called on for the transportation.

Respectfully, &c.,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

[Advertisement.]

WAR WITH MEXICO!

Wanted one hundred active, brave young men to serve with rocket and mountain howitzer batteries, now preparing by the Ordnance Department for immediate departure.

In pay, provisions, and clothing, this corps will be superior to any other yet raised, and, from the kind of arms, will be constantly *in the advance* where the hardest fighting may be expected.

The highest character for *courage* and *physical ability* will be required for admission.

Apply to——

Two dollars paid to citizens for each recruit.

[NOTE.—Copy sent to commanding officers of Augusta, Watertown, Frankford, Washington, Watervliet, Fort Monroe, and Fayetteville Arsenals, and Harper's Ferry Armory.]

[Inclosure 4 and 5, 101.]

This agreement, made this 11th day of December, in the year eighteen hundred and forty-six, between the Hon. W. L. Marcy, Secretary of War, and the Hon. John Y. Mason, Secretary of the Navy, acting for and in behalf of the Government of the United States, on the one part, and J. Burrows Hyde, assignee of the invention known as Hale's war-rocket, on the other part, witnesseth, that said parties of the first part do hereby agree to purchase, and said party of the second part does hereby agree to sell, the necessary instructions and drawings for the preparation of said rockets, upon the terms and conditions following:

1st. When the said J. B. Hyde shall have furnished to Lient. Col. George Talcott, of the Army, and Commodore L. Warrington, of the Navy, representing said party of the first part, the full plans, instructions, and drawings, requisite for making said rocket, which are now in possession of him, the said Hyde, signed by the inventor, Mr. Hale, and verified by his oath, then the said parties of the first part will pay or cause to be paid to the said Hyde, in consideration of said transfer, the sum of two thousand dollars.

2d. Upon receipt of said drawings and instructions, and without unnecessary delay, the parties of the first part shall cause the information thus furnished to be tested, under the direction of a board of officers to be by them appointed for the purpose, by the manufacture, pursuant to said instructions, of ten rockets of two inches, and ten of three inches, which shall perform as successfully as the thirteen 2 $\frac{3}{4}$ -inch rockets which were tried on the 24th and 27th ultimo, by a board of officers in Washington, to whom they were presented for the purpose of said trial by the said Mr. J. B. Hyde. And upon the report of said board that said test has proved satisfactory and sufficient, the said parties of the first part will pay or cause to be paid to the said Mr. J. B. Hyde, in further consideration of such invention, thus satisfactorily furnished, and in full therefor, the additional sum of eighteen thousand dollars.

3d. The said Government of the United States, in consideration of the purchase aforesaid, shall have the right to make and use the said war-rockets, without interruption from or claim for compensation by said inventor, his assignee, or any other person whatsoever.

In testimony whereof, the said parties hereunto place their respective signatures, the day and year first above written.

W. L. MARCY,
Secretary of War.
 J. Y. MASON,
Secretary of the Navy.
 J. BURROWS HYDE.

[549, W. D., 1846.]

ORDNANCE OFFICE,
 Washington, December 14, 1846.

SIR: Captain Huger has applied to this office for a force not exceeding 100 men to be attached to the siege train about to be sent to Mexico. These men are required "to perform all the necessary work in taking care of and preparing the gun carriages and ammunition for service, so that (he) will not be obliged to call for details from the fort companies to perform these duties, and that when the companies are required to remove the guns, entire companies may be detailed."

The suggestions of Captain Huger are approved and appear to offer great advantages. Some of the men required will be detailed from the arsenals, and others must be enlisted to make up the number required.

I am, sir, respectfully, your obedient servant,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Hon. W. L. MARCY,
Secretary of War.

Approved, 15th December, 1846.

W. L. MARCY.

[Miscellaneous letters, vol. 37, p. 491.]

ORDNANCE OFFICE,
 Washington, December 23, 1846.

SIR: Inclosed herewith is an extract from a specification made by Mr. Hale, of England, in relation to rockets of his invention. The War and Navy Departments having purchased the secret and the right to make

Hale's rockets, I deem it proper to notify you of the fact, more especially as I learn that an individual engaged at the arsenal, in the employ of the government, has lately, and since the trial of Hale's rockets there, lodged a specification in your office setting forth his claim to the invention of the same. It would be a singular state of facts if the United States, after purchasing the invention and employing workmen to make the rockets, should be precluded from using them by a patent issued to one of those workmen.

I am, sir, &c.,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

E. BURKE, Esq.,
Commissioner of Patents, &c.

[88 W. D., 1847.]

FORT MONROE ARSENAL, VIRGINIA,
January 17, 1847.

SIR: The accounting officers of the Treasury require evidence of the actual exercise of brevet command on the part of an officer claiming the pay. In regard to officers of the line, the fact is ascertained from the Adjutant-General. In case of officers of the staff, it is generally submitted to the Secretary of War. I have, therefore, to request you to procure his decision, that, while in command of this arsenal of construction, I am, in the terms of the law, "*on duty*," and "*have a command according to my brevet rank*."

Very respectfully, your obedient servant,

J. F. LEE,
Brevet Captain.

Lieut. Col. TALCOTT,
Ordnance Office.

[Indorsement.]

Brevet Captain Lee asks to be recognized as exercising his brevet rank whilst in command of the arsenal of construction at Fort Monroe. It is respectfully recommended that his request be granted, his command being appropriately that of a captain of ordnance.

G. TALCOTT,
Lieutenant-Colonel of Ordnance.

ORDNANCE OFFICE,
January 23, 1847.

[Inclosure.]

Byt. Capt. J. F. Lee submits the question whether he is in the actual exercise of his brevet rank while in the command of Harper's Ferry Armory, and entitled to pay as such.

Brevet Captain Lee being in a command according to his brevet rank while supervising the armory at Harper's Ferry, will be entitled to the pay and emoluments of a brevet captain while on such duty.

J. M. PORTER.

FEBRUARY 9, 1844.

[See also decision of Mr. Secretary Spencer, November 13, 1841, in the case of Brevet Major Lee, holding the brevet of colonel while commanding the arsenal at Saint Louis.]

[Indorsement.]

Will the head of the Ordnance Bureau state what constitutes a captain's command in that corps?

W. L. M.

ORDNANCE OFFICE, *April 10, 1847.*

There are *three* classes of arsenals: 1st, arsenals of construction; 2d, the larger arsenals of repair and deposit; 3d, the smaller arsenals of deposit.

The 1st class are considered the appropriate commands of field officers and senior captains; the 2d class, those of captains; the 3d class, of officers below the rank of captain.

The arsenal at Fort Monroe is an arsenal of construction, of which Brevet Captain Lee was assigned to the command in the absence of its permanent commander on service with the Army in Mexico.

G. TALCOTT,
Lieutenant-Colonel of Ordnance.

Approved, *April 10, 1847.*

W. L. M.

[Miscellaneous letters, vol. 37, p. 508.]

ORDNANCE OFFICE,
Washington, January 5, 1847.

SIR: I transmit herewith copies of orders issued by this office and by Captain Huger relative to the organization of the siege-train and howitzer and rocket battery for service in the field, also the authority of the Secretary of War for a modification of the uniform of ordnance officers.

Respectfully, your obedient servant,

WM. MAYNADIER,
Captain of Ordnance.

Gen. R. JONES,
Adjutant-General of the Army, &c.

ORDERS.

ORDNANCE OFFICE,
Washington, December 28, 1846.

The detachment of enlisted men authorized by the War Department for service in Mexico with the siege-train will be organized at Fort Monroe as soon as practicable. The officers detailed for service with the siege-train are Capt. B. Huger, First Lieut. P. V. Hagner, and Brevet Second Lieutenants Gorgas and Stone. They will be assigned to their particular duties by Captain Huger.

All the public property, funds, books, and papers pertaining to Fort Monroe Arsenal will be turned over to Bvt. Capt. J. F. Lee, who will relieve Captain Huger in command of that post. The latter officer will take command of all the *material and personnel* pertaining to the siege-train, which will be dispatched to its destination as soon as practicable, and will report in person to Major-General Scott.

G. TALCOTT,
Lieutenant-Colonel of Ordnance.

ORDERS.

ORDNANCE OFFICE,
Washington, December 28, 1846.

One of the batteries of mountain howitzers and rockets authorized by the War Department for service in Mexico will be organized forthwith at Fort Monroe. The number of men to serve with the battery will be the same as constitute a company of artillery.

First Lieut. G. H. Talcott is assigned to the command of this battery; Brevet First Lieutenant Callender and Brevet Second Lieutenant Reno will report to him in person at Fort Monroe for service therewith.

This battery will be got ready to start for its place of destination as soon as practicable.

The commanding officer will report its readiness for service in the field to the Adjutant-General of the Army through this office.

G. TALCOTT,
Lieutenant-Colonel of Ordnance.

ORDER NO. 1.

FORT MONROE ARSENAL, December 31, 1846.

I. Agreeably to orders from Ordnance Office dated December 28, 1846, the enlisted men of ordnance now at this arsenal will be formed into three detachments, and will be mustered accordingly.

II. The first detachment, designated for the siege-train, will consist of the men selected for this duty, and will be held in readiness to proceed to New York depot, at a short notice, there to join the remaining men of the train previous to embarkation. Bvt. Second Lieut. C. P. Stone is assigned to this detachment, and will muster it accordingly.

III. The officers appointed by orders of the Ordnance Office of 28th instant, and the men that have been designated to compose the howitzer and rocket battery, will be mustered as a second detachment. First Lieut. G. H. Talcott, in command of the battery, will at once make the necessary requisitions for the guns, carriages, ammunition, &c., which will be turned over to him.

IV. The remainder of the officers and men, not assigned as above, will be mustered as a separate detachment, the men to be under the immediate command of Bvt. Capt. J. F. Lee, who will receive further orders regarding them.

V. First Lieut. P. V. Hagner, attached to the siege-train, will make all necessary preparations for loading the transport soon to arrive here, and will take measures to provide himself with the funds destined for the use of the train, with the disbursement of which he will be charged.

BENJ. HUGER,
Captain of Ordnance, Commanding.

[Miscellaneous letters, vol. 38, p. 12.]

ORDNANCE OFFICE,
Washington, January 18, 1847.

SIR: It has been entirely out of my power to see you in relation to the wants of the service in this department, and I beg you to receive the inclosed sketch of a bill which seems indispensable to enable me to carry on the various, pressing, and important duties confided to this bureau. Upwards of 50 enlisted men of ordnance have been sent to the Army serving in Mexico, and we now have 60 *en route* with a heavy siege-train, and 110 with a rocket and howitzer battery. These two last detachments from the corps were deemed indispensable for the efficient and prompt use of their several descriptions of arms, with which the army at large is believed to be entirely unacquainted, while the ordnance officers have had the benefit of experimental firings for a number of years.

All the different calls have required 15 officers of ordnance who are now either with the Army in the field or under orders to join it.

I shall be happy to afford any explanation or further information that may be deemed necessary to a better understanding of the subject at any moment.

Very respectfully, &c.,

G. TALCOTT,
Lieutenant-Colonel of Ordnance.

Gen. J. A. DIX,
United States Senate.

A BILL for the better organization of the Ordnance Department of the Army.

SECTION 1. *Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That there shall be added to the Ordnance Department, by promotion therein, one lieutenant-colonel, two captains, six first lieutenants, and six second lieutenants.

SEC. 2. *And be it further enacted,* That the enlisted men of the Ordnance Department shall be entitled to all the benefits of the pension laws in like manner with other troops of the United States, and that such of these men as may be actually employed in service with the Army in campaign in time of war shall be entitled to receive the same bounties, both of land and money, as are or may be provided by law for the non-commissioned officers, musicians, and privates of other corps of the United States Army.

[Letters to W. D., vol. 9, p. 120.]

ORDNANCE OFFICE,
Washington, January 22, 1847.

SIR: I have to acknowledge a reference to this office of a letter from General Jesup, Quartermaster-General, dated Brazos Santiago, 2d January, 1847, complaining that he has to perform duties which pertain to the Ordnance Department, viz, to procure sling-carts for moving heavy ordnance, "and to do a great deal more" which is not specified. He also recommends that a corps of enlisted ordnance men, under a competent officer, should be provided for "every depot of the Army in the field."

In relation to all these complaints, I respectfully report that there are no heavier ordnance in that quarter than 18-pounder guns, all of which are mounted on traveling carriages, and require no sling-carts. There are some 12-pounder guns which can easily be carried on a common wagon, also two or more light mortars, none of them a load for two good horses. As regards a corps of enlisted men, about forty were sent to the Brazos, and are understood to be distributed between that place, Camargo, and Monterey, under competent ordnance officers. About sixty have also been sent with the siege train from New York to perform the necessary labors pertaining to the expedition under command of Major-General Scott.

The letter of General Jesup is returned herewith.

I am sir, &c.,

G. TALCOTT,
Lieutenant-Colonel of Ordnance.

Hon. WM. L. MARCY,
Secretary of War.

[Letters to W. D., vol. 9, p. 126.]

ORDNANCE OFFICE,
Washington, February 6, 1847.

SIR: I have the honor to transmit a tabular statement, in four sheets, exhibiting the quantity of artillery, small-arms, ammunition, and other principal ordnance supplies issued for that part of the United States regular and volunteer forces in Mexico, under the orders of Major-General Taylor, together with the quantity issued since, and subject to the orders of Major-General Scott.

Very respectfully, &c.,

G. TALCOTT,
Lieutenant-Colonel of Ordnance.

Hon. WM. L. MARCY,
Secretary of War.

Statement of the quantity of artillery, small-arms, ammunition, and other principal ordnance supplies issued for the service of the United States regular and volunteer forces operating in Mexico, under the orders of Maj. Gen. Z. Taylor.

Date of order for the issue by the Ordnance Bureau.	Name of the arsenal or depot from which the issue was made.	Where and to whom sent.	Siege artillery.						Field artillery.										Artillery harness.		Remarks.
			24-pounder guns and carriages.	18-pounder guns and carriages.	12-pounder guns and carriages.	10-inch mortars and beds.	8-inch mortars and beds.	8-inch siege howitzers and carriages.	Coeurins and beds.	12-pounder iron guns and carriages.	12-pounder bronze guns and carriages.	6-pounder bronze guns and carriages.	24-pounder bronze howitzers and carriages.	12-pounder bronze howitzers and carriages.	12-pounder mountain howitzers and carriages.	Caissons, complete.	Battery wagons.	Traveling forges.	For two wheel horses.	For two lead horses.	
June 18, 1845	Watervliet ...	Duncan and Ringgold batteries, taken with them.																			
July 9, 1845*	Baton Rouge.	Sent to commanding officer New Orleans Barracks.																			
Aug. 8, 1845	Fort Monroe.	do.																			
Aug. 29, 1845	Frankford ...	Sent with Major Monroe, embarking for the Army.																			
Aug. 29, 1845	Frankford ...	Sent to commanding officer at Galveston for the Army.			†20																
Aug. 29, 1845	New York ...	do.																			
Mar. 11, 1846	Washington ...	Sent to Captain Ramsay, Ordnance Department, with the Army.		10		2															
May 9, 1846	New York ...	Sent to Captain Ramsay, Ordnance Department, at Point Isabel.																			
June 16, 1846	Baton Rouge.	do.																			
July 23, 1846	Watervliet ...	do.																			
Aug. 6, 1846	do	do.		4																	
Aug. 14, 1846	do	do.																			
Aug. 10, 1846†	Baton Rouge.	do.																			
Aug. 31, 1846*	do	Sent to Lieutenant Brereton at Camargo.																			
Sept., 1846*	do	do.																			
Oct., 1846*	do	do.																			
Nov. 25, 1846*	do	Sent to Captain Hetzel, Quartermaster's Department, for Tampico.																			
Dec. 5, 1846	New York ...	Sent to Captain Huger, Ordnance Department, in charge of siege-train.	4		10		2	6													

Dec. 24, 1846do.....do.....	8	10	40	3							2	2	22	52	Subject to the orders of Major-Gen- eral Scott.
Dec. 26, 1846	Fort Monroe..	Sent to officer in charge		18											10	20	
Dec. 28, 1846*	Baton Rouge..	Sent to commanding officer Company H, Third Artillery, Tampico.															
Jan. 12, 1847	Fort Monroe..	Sent to Lieut. G. H. Talcott.....															
Jan. 4, 1847 ¹	Baton Rouge..	Sent to ordnance officer at Tam- pico.															
Jan. 7, 1847*do.....	Sent to Lieutenant McNutt, ord- nance officer at Port Polk.															
Jan. 23, 1847	New York	Sent to Captain Huger, Ord- nance Department, in charge of siege-train.	5												5	10	

* These issues were made in anticipation of the orders from the Ordnance Bureau.

† These twenty guns had truck-carriages for garrison service.

Statement of the quantity of artillery, small-arms, ammunition, &c.—Continued.

Date of order for the issue by the Ordnance Bureau.	Name of the arsenal or depot from which the issue was made.	Where and to whom sent.	Ammunition for the artillery.										Remarks.		
			24-pounder guns, rounds.	18-pounder guns, rounds.	12-pounder guns, rounds.	10-inch mortars, rounds.	8-inch mortars, rounds.	8-inch siege-howitzers, rounds.	24-pounder howitzers, rounds.	Ammunition for field artillery, rounds.	Cannon powder in addition to the foregoing, pounds.	10-inch shells in addition.		12-pounder cannon balls in addition.	Cannon primers.	2-inch war rockets.
June 18, 1845	Watervliet	Commanding officer New Orleans Barracks								516					
Aug. 8, 16, 1845.	do	Major Ringgold and Lieutenant Duncan, embarking for the Army.								1,704					
Aug. 8, 16, 1845.	Fort Monroe	Major Monroe, embarking for the Army								1,088					
Aug. 16, 29, 1845.	Watervliet	Commanding officer at Galveston.		240	850					72					
Aug. 29, 1845	New York	do													
Aug. 29, 1845	Allegheny	do		760											
Aug. 29, 1845*	Baton Rouge.	Commanding officer New Orleans Barracks, requisition of General Gaines.		1,150						968					
Mar. 21, 1846	Washington	Captain Ramsay, Ordnance Department, with the Army.				200									
Mar., Apr., and May, 1846.	Baton Rouge	do		427						3,015					
May 9, 25, 1846.	New York	do													
May 11, 1846	Saint Louis	do		1,000						3,344					
June, 1846*	Baton Rouge.	do		3,453											
June 16, 1846	do	do								1,088					
June 16, 1846	New York	do													
July 23, 1846	Watervliet	do								1,392				10,000	
Aug. 6, 1846	do	do		1,000				400	450						
Aug. 14, 1846	Watertown	do											400		
Aug. and Sept., 1846*	Baton Rouge.	Lieutenant Breton, Ordnance Department, with the Army.								1,160					
Oct., 1846*	do	do								3,270					
Nov. 25, 1846*	do	Captain Hetzell, Quartermaster's Department, for Tampico.								1,675					

Statement of the quantity of artillery, small-arms, ammunition, &c.—Continued.

Date of the order for the issue by the Ordnance Bureau.	Name of the arsenal or depot from which the issue was made.	Where and to whom sent.	Ammunition for small-arms.						Accouterments.			Remarks.		
			Musket cartridges.	Rifle cartridges.	Carbine cartridges.	Pistol cartridges.	Percussion caps.	Musket flints.	Rifle flints.	Pistol flints.	Sets of infantry accouterments.		Sets of rifle accouterments.	Sets of cavalry accouterments.
Aug. 8, 1845	Washington	General Taylor, by Major Monroe, embarking for the Army.	100,000						50,000					
Aug. 9, 1845	New York	General Taylor, by Lieutenant Duncan, embarking for the Army.									1,000			
Aug. 9, 1845	Baton Rouge	General Taylor	370,000	100,000					50,000	10,000		1,000		
Aug. 23, 1845	Watervliet	Commanding officer, Galveston, for General Taylor.	300,000	8,000					50,000	20,000				
Aug. 23, 1845	New York	do	39,000									2,500	500	
Aug. 23, 1845	Allegheny	do	700,000									2,500	1,500	
Aug. 27, 1845	Saint Louis	do	36,400						20,000					
Aug. 30, 1845	New York	Delivered to Majors Erving and Dimick.												
Aug., 1845	Baton Rouge	Commanding officer, New Orleans Barracks, requisition of General Gaines.	170,000						50,000		1,200			
Nov. 25, 1845	do	Captain Ramsay, Ordnance Department, Corpus Christi.						101,750						
Mar., 1846	do	do	700,830					169,425	20,000				50	
Apr., May, and July, 1846	do	Army in Texas												
June, 1846*	do	Captain Ramsay, Ordnance Department, Point Isabel.		25,000				11,750	30,000			1,000	100	
July, 1846*	do	do	63,540											
Aug. 26, 1846	Saint Louis	do		30,000									500	
Aug. 10, 14, 1846*	Baton Rouge	do	649,140	52,950	73,000	25,280	247,792	50,000	15,000					
Aug. 31, 1846*	do	Lieutenant Breton, Ordnance Department, Camargo.		52,550	25,000	25,580							500	
Sept., 1846*	do	do	100,790	352,830	99,500	53,480							200	
Oct., 1846*	do	do	200,010		110,550	44,390							500	
Prior to Nov., 1846.	Various arsenals.	Volunteers	565,620	345,620	43,480	24,170		35,782	13,746	97,15,221	3,076	1,094		

WASHINGTON, *February 22, 1847.*

SIR: I have been employed to present for your consideration and decision the claims of Asahel Hubbard and others, inspectors of United States arms at Springfield, for quarters, under the act of 1842. This act expressly gives quarters to those inspectors, and they are as much entitled to these as to their pay, or as any other officers of the United States are to quarters.

From the accompanying papers it will appear—

1. That these officers are admitted to be entitled to quarters under the said act of 1842, by the superintendent of the armory; by Colonel Talcott, the chief of the Ordnance Bureau, and by the Secretary of War. But as the terms of said act of 1842 are *express* on the subject, these admissions do not seem to add any force to the clear legal right.

2. That said inspectors *applied* for quarters, as they were fully authorized to do under said law, and were *refused* them, for reasons set forth, but which, of course, furnished no valid reason for refusing these officers what said act *expressly* gave them.

3. That the claim of these officers to quarters, though fully acknowledged under said act which it was conceded gave them a legal right to such quarters, has not been allowed, *because* the said act, though it *did* give said officers a legal right to quarters, *did not give them a right to commutation for such quarters.*

It appears to me the difficulty which seems to have prevented the allowance of this plain and *legal* claim, is rather *imaginary* than real; at any rate that it is merely *technical*, and that when *practically* no real difficulty exists to prevent the allowance of the express *legal* right of these officers.

The act of 1842 expressly gave them quarters. They applied for such quarters and were wrongfully *refused* them. In consequence of this wrongful refusal, the officers in question were compelled to furnish and *did furnish themselves with quarters*; they have *actually occupied* quarters thus furnished by themselves (because the government wrongfully *refused* to furnish them), and all they now ask is that the United States should now pay for the quarters thus furnished and thus *actually occupied* by them in fulfillment of said act.

There is nothing in the terms of the law of 1842, or in any warranted construction of it, that makes it necessary that the government should *actually own* the quarters to be occupied by such officers, or that makes their *right* to such quarters in any manner dependent upon the government's having buildings to be assigned them for that purpose, any more than the right of the officers of the Army to the quarters *allowed them by law* is dependent upon these facts. The right of these officers to quarters stands on the same footing as that of other officers of the government to whom the law assigns quarters. If the government owns quarters it is well; if not, it is legally bound to procure and furnish them, or if the officer is left to furnish them for himself, to pay a just and reasonable price for those actually furnished and occupied. If necessary, however, it can be shown from the records of the Second Auditor's office that the United States owned suitable buildings at Springfield which might have been assigned to these officers as quarters; and which have been *rented out* by the officers or agents of the government, whilst the officers whose claims are now presented have failed to receive the quarters to which they were expressly entitled by law. It is also believed that the records of said Auditor's office will

show an *amount of rent* received for such buildings nearly or quite sufficient to pay for the quarters which the officers in question have been *compelled* to furnish for themselves and which have been *actually occupied* by them, at the rate of at least \$100 per annum, the sum recommended as reasonable both by Major Ripley and Lieutenant-Colonel Talcott in their communications sent herewith.

The idea that any *further legislation* beyond the positive provisions of the act of 1842 can be necessary, seems absurd; and to deprive the claimants of the benefits of the express provisions of that law would seem to be an act of great injustice.

Should any difficulty to the allowance of this claim be supposed to exist after an examination of the same, I respectfully ask to be informed of it, as I feel entire confidence both in the justice and strict legality of the claim under existing laws.

Very respectfully, your obedient servant,

CHAS. E. SHERMAN.

Hon. Wm. L. MARCY,
Secretary of War.

[Letters to W. D., vol. 9, p. 135.]

ORDNANCE OFFICE,
Washington, March 10, 1847.

SIR: In reference to the claim of certain inspectors at Springfield Armory, presented in the letter of C. E. Sherman, of the 22d ultimo, referred to this office, I have to report:

The claim is that the United States should pay these inspectors for the quarters which they have themselves provided and occupied since the passage of the act of August 23, 1842.

It appears that they did apply to be furnished with quarters belonging to the United States, but they were not so furnished, because there were no such quarters properly so disposable; of course they have occupied some quarters which were not provided by the United States. The whole question appears to me to depend upon the construction of the last sentence in the second section of the act approved August 23, 1842. That sentence prohibits these officers from receiving "any compensation or commutation beyond their stipulated pay, in money, except quarters actually provided for and occupied by such officers." In this case quarters were not provided by the United States, but they were provided by the inspectors and occupied by them.

Your opinion has been given, "that where quarters have not been furnished to an inspector, the law does not authorize any allowance in lieu or as a commutation therefor." I suppose the inspectors are aware of this, and they now put their claim on the ground of a refundment to them of rent, which they have paid for quarters, in the language of the law "actually provided for" (by themselves) "and occupied by" them.

On this subject I desire to refer to my report to you of the 27th March, 1846, which is among the papers accompanying Mr. Sherman's letter, returned herewith.

I am, sir, &c.,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Hon. W. L. MARCY,
Secretary of War.

[Inclosure.]

WAR DEPARTMENT, *March 16, 1847.*

SIR: I have received your argument of the 22d ultimo, in favor of the claim of certain inspectors at Springfield Armory to compensation for quarters furnished themselves. This claim has already been brought before the department and rejected, and I see nothing to change my views. In my opinion the inspectors can receive no other money allowance than the salary fixed by the act of August 23, 1842. The plain intent of the exception in the act is not to prohibit the department to furnish quarters to the officers mentioned, but if the department has not done this there is no authority to make them any pecuniary or other compensation; on the contrary, it is expressly prohibited.

Respectfully,

W. L. MARCY,
Secretary of War.

C. E. SHERMAN, Esq.,
Washington City.

[Inclosure.]

WASHINGTON, *March 22, 1847.*

DEAR SIR: I do not feel authorized, at this moment, to trouble you on a *private matter*. I have explained to Mr. Campbell why the question of quarters to inspectors of Springfield Armory should be referred to the *accounting officers* for settlement, and, I hope, as a matter of *law*, you will do me and the claimants the favor so to refer it, and save me the trouble of troubling you with it.

The act organizing the Treasury *expressly* and *absolutely* places this *claim* subject to the "final decision" of those officers. It arises within their *express jurisdiction*, like the case of *Mr. Bates*, which, upon the authorities cited, you so referred after *two decisions* against it.

Very respectfully, your obedient servant,

CHAS. E. SHERMAN.

Hon. W. L. MARCY,
Secretary of War.

[Indorsement.]

After a case has been brought before me as Secretary and I have decided it, I do not think it proper for me to refer it to the auditing officers; or in other words to invite them to entertain an appeal from my own opinion. If the claim was improperly brought before me instead of the auditing officers that fact will not, I presume, prevent them from acting upon it. If it be proper for them they will examine it without a reference of it by me.

W. L. MARCY.

MARCH 24, 1847.

[69 W. D., 184.]

ORDNANCE OFFICE,
Washington, March 8, 1874.

SIR: I have the honor to submit an abstract of the proceedings and recommendations of the Ordnance board, which convened on the 10th

ultimo, and respectfully suggest the approval of the several recommendations made by the board.

Very respectfully, I am, sir, your obedient servant,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Hon. W. L. MARCY,
Secretary of War.

Approved March 12, 1847.

W. L. MARCY.

[Inclosure.]

REPORT OF THE ORDNANCE BOARD,
Washington, March 6, 1847.

The board have come to the following conclusions with regard to the subjects laid before them at this session.

1. SMALL-ARMS.

The board approve of the models of musketoons for cavalry, artillery, and sappers, and miners, prepared at Springfield Armory, and recommend their adoption for service.

They propose that the foot artillery, generally, shall be armed with the musketoon without a bayonet, as the men carry swords; but they recommend also that two companies of foot artillery in the field be furnished with the sapper's musketoon and sword bayonet, in order to ascertain by experience in service, whether these arms may not be advantageously substituted for the artillery musketoon and sword.

The charge of powder proposed for these arms is 75 grains.

The cartridge-box and belt for the foot artillery be, for the present, the same as that of the infantry.

The board propose for adoption the scale of prices of small-arms, appendages, and accouterments, with their several components.

Price of arms.

PERCUSSION.

Parts.	Musket.	Rifle.	Artillery mus- ketoon.	Cavalry mus- ketoon.	Sappers' mus- ketoons.	Pistols.
Barrel with sights without breech-screw	\$4 10	40	\$3 50	\$3 55	\$3 55	2 00
Breech-screw	10	10	10	10	10	08
Bayonet-stud	01		01		01	
Tang-screw	05	05	05	05	05	04
Breech-sight		06				
Cone	09	09	09	09	09	09
Lock-plate	50	50	50	50	50	40
Tumbler	27	27	27	27	27	25
Tumbler-screw	03	03	03	03	03	03
Bridle	16	16	16	16	16	14
Sear	20	20	20	20	20	17
Sear-spring	10	10	10	10	10	08
Main-spring	27	27	27	27	27	25
Lock-screw, each	03	03	03	03	03	03
Hammer	60	60	60	60	60	45
Side-plate	07	10	07	12	07	140
Side-screw, each	04	04	04	04	04	03
Upper band	38	45	38	38	58	
Middle band	23					
Lower band	15	18	21	28	21	
Upper-band spring	09	09	09	09	09	
Middle-band spring	08					
Lower-band spring	08	08	08		08	
Guard-plate	42	50	40	50	40	35
Guard-plate screw, each	03	03	03	03	03	02
Guard-bow without swivel	30	35	20	25	20	20
Guard-bow nut, each	02	02	02	02	02	02
Swivel and rivets, each	10	10	10		10	
Swivel-plate			10		10	
Swivel-plate screw, each			03		03	
Triggers	12	12	12	12	12	09
Trigger-screw	02	02	02	02	02	02
Butt-plate	30	53	30	50	30	28
Butt-plate screw, each	03	03	03	03	03	02
Ramrods	50	50	40	50	40	25
Ramrod-springs	12	12	12		12	
Ramrod-wires	01	01	01		01	
Ramrod-stop	01	01	01		01	
Stock	1 45	1 85	1 36	1 36	1 36	90
Bayonet	1 45					
Bayonet-clasp	16					
Bayonet-screw	02					
Box-plate		72				
Box-catch		05				
Box-spring		10				
Box-spring screw		02				
Box-screw, each		03				
Ramrod-swivel and rivet				25		25
Ramrod-swivel and rivet-screw				03		02
Swivel-bar				24		
Swivel-nut				02		
Swivel-screw				03		
Swivel-ring				03		
Sword-bayonet blade					2 13	
Sword-bayonet hilt without clasp					1 60	
Sword-bayonet clasp					21	
Sword-bayonet clasp screw					02	
Barrel complete	4 30	4 65	3 70	3 74	3 75	2 17
Lock complete	2 25	2 25	2 25	2 25	2 25	1 89
Guard complete	1 06	1 16	84	90	84	72
Bayonet complete	1 63					
Box-plate complete		98				
Arm complete	13 00	13 25	10 37	11 00	10 62	7 00

* Band stud,

† With band.

Price of arms—Continued.

	Screw-driver.	Wiper.	Ball-screw.	Spring-vice.	Bullet-mold, rifle caliber.
Appendages for all arms	\$0 25	\$0 20	\$0 12	\$0 35	\$0 50

SWORDS AND SABRES.

Parts.	Cavalry sabre.	Horse artillery sabre.	Artillery sword.	Musketoon sword bayonet.	Non-commissioned officer's sword.	Musician's sword.
Hilt:						
Gripe	\$0 20	\$0 17			\$0 24	\$0 20
Head	70	44	\$0 87	\$1 60	50	44
Guard	1 10	58			1 20	44
Blade	2 80	1 98	2 13	2 13	2 20	1 92
Scabbard:						
Mouth-piece and spring	25	10				
Body	1 20	1 00	50	62	66	50
Bands and rings	60	60				
Perule and stud	15	13	25	40	35	25
Tip	00	00	25	25	35	25
Arm complete	7 00	5 00	4 00	5 00	5 50	4 00

ACCOUTERMENTS.

Parts.	Infantry.	Artillery.	Cavalry.	Rifle.
Cartridge-box	\$1 10			
Cartridge-box plate	10		\$0 10	\$0 10
Cartridge-box belt	60			
Cartridge-box-belt plate	10			
Bayonet-sabbard and frog	56			
Waist-belt	21			34
Waist-belt plate	10			10
Brush and pick	12			12
Cap-pouch and pick	40		40	40
Gun-sling	16			16
Sabre-belt		1 03	1 30	
Sabre-belt plate		10	10	
Sword-belt		1 00		
Sword-belt plate		10		
Non-commissioned officers and musicians' sword-belts	52			52
Non-commissioned officers and musicians' sword-belt plates	10			10
Carbino-cartridge box			87	
Rifle-cartridge box				95
Pistol-cartridge box			75	
Holsters with soft leather caps			2 63	
Carbine-sling			75	
Carbine-swivel			75	
Sabre-knot			27	
Bullet-pouch				53
Flask and powder belt				40
Powder-flask				1 20

2. SMITH'S RIFLE GUN.

The board are of opinion that this gun, as at present mounted and arranged, is not adapted for the peculiar service required of such a piece.

An arm of this kind should be sufficiently light to be managed and to be carried for a short distance by one man; it should have an accurate and effective range of about 800 yards, in order to serve either as a wall-piece or for use on the Western frontier, in procuring subsistence for troops, as well as for purposes strictly military.

The instructions given in the accompanying memorandum (marked *B) will, it is thought, furnish the general principles on which such a rifle should be made, and it is recommended that Mr. Smith, the maker of the gun submitted to the board, who has given much attention to this subject, should be employed to make a rifle according to those instructions, to be tried by the Ordnance Department, in comparison with those of a similar kind already under construction at Harper's Ferry Armory.

3. MANUFACTURE OF PERCUSSION CAPS FOR SMALL-ARMS.

In view of the peculiar nature of this manufacture, the danger attending some parts of the process, and the importance of having the means of making caps in large quantities and of undoubted quality, the board recommend that a separate establishment for the purpose be made at one of the minor arsenals, and they consider Frankford Arsenal to be the most eligible place for this establishment, as offering the greatest facilities for procuring materials and apparatus. They therefore recommend that a suitable site be procured adjoining the present arsenal grounds, as their present extent does not furnish a proper and safe location for the buildings.

4. ARTILLERY DRAWINGS.

The drawings of the systems of artillery for field, siege, and garrison service, as arranged by the Ordnance Board, being far advanced towards completion, the board recommend that the finished drawings, after having been carefully verified and corrected, be *lithographed* for distribution to the arsenals of construction, &c.

5. EXAMINATION OF IRON GUNS IN SERVICE AND IN DEPOTS.

The board are of opinion that Lieutenant Walbach's reports of the examination and classification of iron guns according to the apparent quality and strength of metal present considerations of the highest importance to the service and to the national defense; but before they can venture to decide a question of such moment as the rejection of a large number of guns from the armament of the forts, they deemed it necessary that the results of Lieutenant Walbach's examination should

** B.—General instructions proposed for making a rifle gun or wall-piece.*

	Inch.
Diameter of bore	0.75
Exterior diameter of barrel at breech	2.25
Exterior diameter of barrel at muzzle	1.75
Length of barrel, inches	30 to 36
Weight of barrel, about	30 pounds

Grooves to have a uniform twist of one turn in six feet.

To carry a conical ball of about 3 ounces.

The gun to be sighted for distances up to 800 yards.

To be mounted with a stock and a percussion lock, on a convenient tripod stand, adapted to being carried on a pack-horse and to be managed by one man.

For the board.

G. TALCOTT,
Lieutenant-Colonel of Ordnance.

be fully tested by a comparative trial of several guns of each class, and of various calibers, from each foundry, which should be proved to extremity with powder and ball, some with service charges and others with increased charges, in order to ascertain both their relative and their absolute endurance.

6. REPORT OF PROCEEDINGS OF THE BOARD AT THEIR MEETING IN 1846.

This report not having been definitely acted on by the Secretary of War, the subjects embraced in it are again submitted for his consideration.

Respectfully submitted to the Secretary of War.

For the board.

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance, President.

[81 W. D., 1847.]

COLEMAN'S HOTEL, *March 15, 1847.*

DEAR SIR: I beg it to be understood that the papers which I have committed to you are *now alone* for the purpose of asking the question, to be submitted to the legal adviser of the Executive, whether or not a class of officers which were always admitted to be civil were made military or extended to a life tenure by the act of 23d August, 1842. A request for removal or appointment would, of course, be premature till this question is settled. I hand you with this a letter from Hon. E. Burke to the President, and refer you to the paragraph which I have marked and underscored; it is on the third page. I called on the President with this letter; many others were in the room, and he had not time to hear me explain that my only desire was that the question should be referred to the Attorney-General.

He, under the circumstances, very properly indorsed it, and "referred to the Secretary of War." Yet the Secretary of War had previously said to Mr. Burke and myself that the subject of reference was a proper matter for the consideration of the President, and referred us to him. It was only owing to the President not having time to comprehend my purpose, as I apprehend, that I did not receive a decisive answer from him. I submitted to him no paper but the letter from Mr. Burke.

I submitted the law of August, 1842, to Hon. B. F. Butler, New York, and to eleven of the fourteen members of Congress who have recommended me, and all concurred in the opinion that this law does not alter or change the tenure of the office in question. It should be borne in mind that the construction of life tenure was not given to these offices till late in the session of 1843, for it was not till then that nominations of any of them were sent to the Senate.

Whatever might have been the desire of the administration of President Tyler, it must be the wish of this that the people shall decisively and explicitly understand by what tenure their public servants hold office.

I feel grateful for your kindness in offering to submit this matter to the President, and am,

Very respectfully, your obedient servant,

WELLS LATIROP.

Hon. CAVE JOHNSON.

[Indorsement.]

Referred to the Secretary of War, with the remark, that I do not deem it to be necessary to call on the Attorney-General for his legal opinion in the case.

J. K. P.

MARCH 17, 1847.

[Inclosure.]

PATENT OFFICE, *March 10, 1847.*

SIR: Wells Lathrop, esq., who will place this letter in your hands, is an applicant for the office of paymaster at the armory at Springfield, Mass.

He will present recommendations of a highly respectable character as to his competency and responsibility for the office which he desires. He will also, I think, be able to convince you of the propriety of removing the present incumbent of the office, and also that that institution of the government is now wielded, under its present management, against the Democratic party and the Administration. He has, however, been met with an objection at the War Department, which you may desire to have removed before you shall act in the matter, if you shall deem any action necessary.

Before the act approved August 23, 1842, respecting the organization of the Army, "and for other purposes," all the armories of the United States were under the government of a civil superintendency.

The second section of the act changed that government from civil to military.

The office of civil superintendent was abolished, and its duties transferred to officers belonging to the Ordnance Corps of the Army. So far there is no doubt as to the true construction of the law. But the same section goes on to fix the compensation of the paymasters, inspectors, clerks, master of armorers, &c., and since then it has been contended that the paymasters were thus transferred from civil life to the line of the Army.

That this construction is wrong I have no doubt, and my opinion is formed from a careful examination of the whole subject; besides, I was a member of the House of Representatives when the act was passed, and remember well the reasons assigned in favor of assigning the superintendency of the armories to military men, but have not the least recollection that it was understood when the bill was under consideration that it transferred to the line of the Army the paymasters who before belonged to the civil list.

If the construction put upon the act by General Scott be correct, it in effect transfers some fourteen paymasters from temporary offices to offices for life, and thus violates so far the salutary policies of a republican government in regard to the tenure of office. I am aware that military offices, like civil, are within the control of the President, but usage has made the tenure of the former to continue through life or during good behavior.

I have, with Mr. Lathrop, had an interview with the Secretary of War. He said to us that, finding such a construction to have been given to the law when he went into office, he was not inclined to disturb it; but he had no objection to have the question maturely considered and settled by the Attorney-General, if you should deem it expedient to submit it to his consideration.

In concluding I would most respectfully remark that if it were possible to prevent such establishments as the armories of the United States to become, like other large manufacturing establishments, instruments in the hands of the Federal party to be wielded against the cause of the people it would be wise and patriotic to do it. From what I can learn I believe the influence and power of the officials connected with the armory at Springfield are as much exerted to overawe and intimidate persons in their employment from expressing an honest opinion at the ballot-box as they are in any of the large manufacturing establishments in New England. And I have no doubt that this improper influence would be checked if the officers connected with those establishments were made to understand that they held their places at the will of the Executive.

I have the honor to be, most respectfully, your obedient servant,

EDMUND BURKE.

To the PRESIDENT OF THE UNITED STATES.

NOTE.—It has been a standing ground of complaint, on the part of the Federalists at Springfield, that the armorers, being chiefly Democrats, interfere at the polls in an unwarrantable manner, and to the

prejudice of the Federal party. My own opinion is that very few of the armorers vote on either side, those that reside on the public grounds having no legal right to vote.

G. TALCOTT.

MARCH 27, 1847.

[87 W. D., 1847.]

The Quartermaster and Ordnance Bureaus will, with the least practicable delay, communicate to this department all the facts touching the supply of ordnance and ordnance stores, and the transportation of the same for the army, with Major-General Scott before Vera Cruz, specifying the time when the ordnance and stores were reported ready for shipment, the time they were shipped, the day of sailing of the several transports, and the particular instructions given to each in regard to rendezvous and final destination, with any other information which may be important to a full and clear understanding of the subject; and also any information which those bureaus may possess in relation to delays caused by accidents and the like.

W. L. MARCY,
Secretary of War.

WAR DEPARTMENT, *April 8, 1847.*

[Letters to W. D., vol. 9, p. 140.]

ORDNANCE OFFICE,
Washington, April 8, 1847.

SIR: In compliance with your instructions of this date, I have to report the following facts touching the supplies of ordnance and ordnance stores for the army under Major-General Scott, and the transportation for the same, so far as this office is informed on that point. The first requisition was made from this office on the Quartermaster's Department, dated December 4, 1846, for the shipment from New York of 4 24-pounder siege guns and 2 8-inch siege howitzers, with 3,000 rounds of ammunition, 6 24-pounder Coehorns, with 600 rounds of ammunition, 10 10-inch siege mortars, 5,000 10-inch shells, and 600 barrels of powder.

The order for issuing these supplies was sent to the ordnance officer at New York on the 5th December, 1846. They were shipped on board the ship *Talmaroo*, which sailed from New York on the 19th January, 1847.

The second requisition on the Quartermaster's Department is dated December 9, 1846, for the shipment from *New York* of 8 24-pounder siege guns and 10 8-inch siege howitzers, with 9,000 rounds of ammunition, 3 24-pounder Coehorns, with 600 rounds of ammunition, 10 10-inch siege mortars, 5,000 10-inch shells, and 850 barrels of powder; and from *Fort Monroe* of 6 12-pounder mountain howitzers, with 1,200 rounds of ammunition, 18 10-inch siege mortars, 11,245 10-inch shells, and 500 barrels of powder. On the 19th December, 1846, a letter was addressed to the Quartermaster-General, stating that it was considered necessary that transportation should be provided at once for the second shipment from New York, embraced in the list dated 9th December. Orders for the issue of these articles were sent to the ordnance officer at New York on the 24th of December, 1846, and to the ordnance officer at Fort Monroe

on the 26th of December. Those from New York were shipped in the ship *Vernon*, which sailed on the 8th February, and in the bark *Rainbow*, which sailed on the 23rd of February, and in the bark *Mallory*, which sailed on the 24th February. Those from Fort Monroe in the bark *Saint Cloud*, which sailed on the 1st of February, and in the ship *Charles*, which sailed on the 4th of February.

On the 9th January, 1847, the Quartermaster-General was informed that we had been collecting shells and gunpowder in large quantities at New York, Fort Monroe, and Baton Rouge, with a view to the wants of the service in Mexico, and that it was desirable that shipment should be made from time to time from those points up to the last day of the month, and that the requisite transportation was requested for about 800 tons of shells and 90 tons of powder from New York, 200 tons of shells from Fort Monroe, 600 tons of shells and 52 tons of powder from Baton Rouge.

On the 23d January, 1847, the Quartermaster-General was informed that we were advised of the receipt at New York of 20,000 10-inch shells and 1,400 barrels of powder ready for shipment, to follow the vessels which had been already loaded with the siege train, and it was suggested that two vessels should be taken up, in order to divide these stores, which should receive the same destination as those already shipped. Orders were sent on the 23d January, 1847, to the ordnance officer at New York to issue 5 18-pounder siege guns, with 2,500 rounds of ammunition, 20,000 10-inch shells, 1,400 barrels of powder, and 3,300 24-pounder shells for Coehorns; and again, on the 22d February, to issue 10,000 10-inch shells and 700 barrels of powder; also to the officer at Baton Rouge Arsenal, on the 2d February, to issue 10,000 10-inch shells and 700 barrels of powder. These stores were shipped in bark *Godfrey*, which sailed from New York on the 4th March; in the ship *E. Dennison*, which sailed from New York on the 18th March; and in the ship *Charlotte Reed*, which sailed from Baton Rouge; the stores reported on board of her at that place on the 1st of March, the day of her sailing, not stated.

The sailing orders for these vessels in no case emanated from this office.

I inclose herewith a tabular statement showing the quantity and kind of ordnance and ordnance stores which have been supplied for the siege train.

In every case implements and equipments complete, with platforms and every requisite fixture and apparatus for the service of the batteries, have been issued with the cannon and mortars.

Respectfully, &c.,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Hon. WM. L. MARCY,
Secretary of War.

*Statement of ordnance and ordnance stores constituting the siege train of the army before
Vera Cruz.*

	24-pound guns.	18-pound guns.	8-inch howitzer.	Mountain howitzer.	10-inch mortars.	24-pound Coehorns.	Ammunition for siege guns and howitzers.	Ammunition for mountain howit- zers.	Ammunition for Coehorns.	10-inch shells.	Cannon powder.
							<i>R'ds.</i>	<i>R'ds.</i>	<i>R'ds.</i>		<i>Lbs.</i>
Per ship Talmaroo, from New York, sailed 19th January, 1847.	4	2		10	6	3,000		600	5,000	60,000	
Per bark Saint Cloud and ship Charles, from Fort Monroe; the former sailed 1st February, the latter 4th February.				7	18			1,300		11,245	50,000
Per ship Vernon and barks Rainbow and Mallory, from New York; the first sailed 8th February, the second 23d February, and the third 24th February.	8	10		10	3	9,000		600	5,000	85,000	
Per bark Godfrey and ship E. Dennison, from New York; the former sailed 4th March and the latter the 18th March.		5				2,500		3,300	30,000	210,000	
Per ship Charlotte Reed, from Baton Rouge, loaded March 1; day of sailing not stated.									10,000	70,000	

[Letters to W. D., vol. 9, p. 143.]

ORDNANCE OFFICE,
Washington, April 23, 1847.

SIR: In relation to the claim of Joshua Shaw, as the inventor of percussion primers, &c., under a law passed at the late session of Congress for his benefit, I have the honor to report as follows: Mr. Risque, the agent of Mr. Shaw, who drew up his memorial to Congress, has lodged in this office a mass of information upon the subject, gleaned from all the English publications, and also set forth the grounds of the claim in a separate paper. I have examined all the French books within my reach, and from the whole mass nothing has yet appeared to change the opinion formed some time since that Mr. Shaw is certainly the inventor of the percussion primer for cannon and probably for small arms. He also arranged percussion locks to be used with his primers for cannon. I cannot learn that his locks were used by this department, but his cannon primers were used extensively for a period. It is several years since changes were made in all the modes of making and using the primers, so that nothing in service at this time is like the original invention so far as details are concerned, but nevertheless the cannon primer of Mr. Shaw is the foundation upon which all the later improvements are based.

As regards the compensation to be awarded to Mr. Shaw, having no reference to the law passed by Congress, I should think ten thousand dollars an ample allowance, or one-half the sum named in the act for his relief would certainly be esteemed a liberal remuneration for his invention.

All the papers in the case are inclosed herewith.

I am, sir, &c.,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Hon. W. L. MARCY,
Secretary of War.

[120, W. D., 1847.]

WAR DEPARTMENT,
Washington, May 3, 1847.

I hereby certify that I have examined the claims of Joshua Shaw upon the Government of the United States, pursuant to the direction of the act of Congress, entitled "An act for the relief of Joshua Shaw," passed the 20th February last, and do hereby state that I have found due to him upon principles of justice and equity, from the United States, the sum of eighteen thousand dollars, as a full compensation for the past and future use of his invention of percussion caps and locks for small arms, and percussion locks and wafer primers to be applied to the firing of cannon, and I do report that sum for payment.

W. L. MARCY,
Secretary of War.

SECOND AUDITOR OF THE TREASURY DEPARTMENT.

[Letters to W. D., vol. 9, p. 146.]

ORDNANCE OFFICE,
Washington, May 5, 1847.

SIR: In relation to the letter of the governor of Mississippi, referred to this office, asking that certain volunteers from that State be allowed to retain the arms which they have used so efficiently in Mexico, I have the honor to report as follows:

With every disposition to gratify the rational desire of the soldier to retain in his possession the weapon with which he has so successfully fought and gained imperishable renown, there is no power in this department to thus dispose of public property.

One thousand percussion rifles were issued to the regiment commanded by Col. Jefferson Davis. How many have been lost or destroyed in service is not known. The alternative proposed by Governor Brown, that these arms be issued to the State of Mississippi under the law of 1808 as a part of her quota may be adopted provisionally, and the whole number stand charged to that State until the losses are ascertained, or until legislation shall be had in the case. The number of muskets usually apportioned to the State is about three hundred and fifty, so that it would absorb the allotment for three years were the whole number issued to remain charged to the State.

The letter of Governor Brown is returned herewith.

I am, sir, &c.,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Hon. WM. L. MARCY,
Secretary of War.

[Miscellaneous Letters, vol. 38, p. 207.]

ORDNANCE OFFICE,
Washington, May 22, 1847.

SIR: I have to acknowledge the receipt of Lieut. Col. S. R. Anderson's letter of the 12th instant, referred by you to this office. Colonel Anderson incloses the receipt of John Kahoe, "in charge of Ordnance Department" at Vera Cruz, for a pair of pistols and holsters, which the

colonel had drawn from Captain Ramsay, for his personal use, under the 72d article of Ordnance Regulations. The question to be settled is, whether an officer who has thus obtained arms can, by returning them to the government, be exonerated from the charge of the cost price thereof, which it is made the duty of this office to report to the Second Auditor, in order that the amount may be stopped from the officer's pay.

There is no obligation on the part of the government, by existing laws and regulations, to furnish officers with arms; they are considered a part of the officer's personal equipment, like his uniform clothing, to be provided at his own cost. The 72d article of Ordnance Regulations, however, authorizes the issue of one set of arms and accouterments to each officer for his own use, and no others, if the state of the public supplies will permit, on his giving receipts therefor, authorizing the amount of the cost price to be deducted from his pay, which amount is required to be reported to the Second Auditor, in order that the deduction may be made. The regulations are silent as to any further accountability for arms, &c., thus issued, and it would seem from this that with the stoppage of pay it is intended to close the transaction and to regard it as a sale of the arms to an officer. In most cases the stoppage is made and the money received by the government while the arms are still in use by the officer, and I have never known of a refundment on their being afterwards returned.

I am of opinion that an officer cannot, by producing a receipt for arms thus procured, claim to be relieved from the charge which he authorized to be made against himself when he obtained them; although I see no objection to canceling the charge, *provided there is evidence that the arms are returned in as good order as when received*, except that it may embarrass the settlement of the accounts at the auditing offices. In such cases I think it may be discretionary with the accounting officers of the Treasury, as the regulations neither direct nor prohibit it.

In the case now referred to this office the receipt designates the articles returned as old, which implies that they are not in as good order as when issued.

Colonel Anderson's letter is returned herewith.

Respectfully, &c.,

GEO. TALCOTT,

Lieutenant-Colonel of Ordnance.

J. M. McCALLA, Esq.,
Second Auditor.

[160, W. D., 1847.]

WAR DEPARTMENT,
Washington, July 6, 1847.

SIR: I have received the papers in the case of the application of the paymaster and military storekeeper to dismiss the clerk at Harper's Ferry Armory. I am surprised that the paymaster should have come under a written engagement to give any one not connected with the armory or in public service any control over this matter. As he entertains no distrust of the present clerk's "capacity, honesty, or integrity," it would seem not to be for his own security or any consideration connected with the public interest, but to carry out "a written pledge" (which I think should never have been made) that he now proposes to make the change.

Without undertaking at this time to determine the question as to where the right to dismiss the clerk rests, I think it proper to adopt the rule established by Mr. Poinsett, my predecessor, in 1839, as to this officer. In a case of vacancy he allowed the paymaster and storekeeper to nominate, and conferred on the superintendent the right to approve. On the principle adopted by Mr. Poinsett the change cannot be made till the superintendent approves of the nomination of the successor to the present incumbent. But, considering the case analagous to the appointment of clerks to paymasters in the Army (and it appears to me the same rule would be applicable), the appointment of clerks is not vested in the paymaster and military storekeeper. Army paymasters name the clerks they desire and the Secretary of War approves of or authorizes their appointment.

Very respectfully, your obedient servant,

Captain MAYNADIER,
In charge of Ordnance Bureau,
Washington City, D. C.

W. L. MARCY,
Secretary of War.

[Inclosure.]

ORDNANCE OFFICE, Washington, July 6, 1847.

SIR: The inclosed letter from Major Symington, at Harper's Ferry Armory, with one addressed to him by Edward Lucas, esq., the paymaster of that armory, and a copy of the major's reply thereto, as to the right claimed by Colonel Lucas to appoint a clerk for the pay office there to the exclusion of one now in service, is respectfully referred for your decision.

Clerks at the national armories are recognized in the Ordnance Regulations approved by the War Department 1st May, 1834, and 22d June, 1839. They had always been appointed by the superintendents in the same way that clerks at the arsenals were by the respective commanding officers, but the mode of appointment had never been prescribed by General Regulations; and in 1839 a question arose between the paymaster at Harper's Ferry and Colonel Lucas, the then superintendent, as to filling a vacancy of clerk in the paymaster's office; and Mr. Secretary Poinsett decided as follows: "The paymaster at Harper's Ferry may nominate the person he desires shall fill the vacancy of clerk in that office, subject, however, to the approval of the superintendent."

The act of Congress of 23d August, 1842, entitled "An act respecting the organization of the Army, and for other purposes," fixes the pay of clerks at the national armories (see 2d section), but is silent as to the mode of their appointment, and the decision of Mr. Poinsett, above quoted, gives the rule only in the case of an *existing* vacancy.

Major Symington's objection to Paymaster Lucas's nomination of a clerk is that there is no vacancy, and that a confirmation of that nomination would make it necessary for him to *dismiss* a valuable clerk now in service.

The case is respectfully submitted for decision.

With great respect, sir, your obedient servant,

WM. MAYNADIER,
Captain of Ordnance, in charge of Ordnance Bureau.

Hon. W. L. MARCY,
Secretary of War.

[Inclosure.]

HARPER'S FERRY ARMORY, July 2, 1847.

SIR: I inclose herewith a letter from Colonel Lucas, paymaster at this armory on the subject of the right claimed by him of appointing a clerk in the paymaster's office and removing the clerk, Mr. Dangerfield, who has for some years back been on duty in that office.

As the point to be determined is of some importance at the armory, I respectfully request that a decision in the case may be given as early as can be.

I am, sir, very respectfully, your obedient servant,

JOHN SYMINGTON,
Major of Ordnance.

Lieut. Col. GEO. TALCOTT,
Ordnance Office.

[Inclosure.]

BALTIMORE, June 29, 1847.

SIR: As the fiscal year ends to-morrow, and the inventory will probably be in a state of forwardness to enable me to receipt for and take charge of all the stores and public property at the Harper's Ferry Armory upon my return on Thursday next, I respectfully beg leave to inform you that I have concluded to appoint my nephew, Mr. Robert Lucas, clerk in place of Mr. Dangerfield, and now ask that he be recognized and respected accordingly. I felt constrained to exercise this right in justice to my sureties, as well as to myself, if not prohibited by law. Indeed, I put myself under a written pledge to them to do so, and to select the individual to assist me in taking charge of the public property and moneys, particularly in counting and disbursing the latter, that might be the most acceptable to them, and I have done so. But if the right or power to appoint their own clerks has been taken from the paymasters and military storekeepers at the national armories (as you were under the impression was the case) by an order or regulation made by Colonel Bell, while Secretary of War, then I have to ask the favor of you to furnish me with an extract from the law or regulation bearing upon the subject matter (not having seen them), with a view to its being submitted to the Executive for his decision. It is proper, on this occasion, for me to disclaim any distrust of Mr. Dangerfield's capacity, honesty, or integrity; and I must also be permitted to add that, feeling as I do, in common with all who have the honor of knowing you well, the highest respect and esteem for you, both as a gentleman and an officer, and being deeply impressed, too, with the vital importance of strict subordination in our military institutions—which are the great safeguards of freedom and national independence whilst controlled by the civil, under the Constitution—I should be the last to be capable of doing any act derogatory to either.

Should the appointment of Mr. Lucas meet with your approbation, and Mr. Dangerfield acquiesce, I have thought of proposing for him to continue to discharge, in part, the duties of the office for three months longer, and get the pay, and for Robert Lucas to be known as the clerk and attend to some of the duties, such as assisting in paying off, &c., but without compensation therefor during that period, so as to afford time and opportunity to the former for getting other employment should he desire to do so.

I have the honor to be, sir, your most obedient servant,

EDWD. LUCAS, JR.,

Paymaster and Military Storekeeper, U. S. A.

To Maj. JOHN SYMINGTON,
Commanding Harper's Ferry Armory, Virginia.

[Inclosure.]

HARPER'S FERRY ARMORY, July 2, 1847.

SIR: I have respectfully to acknowledge the receipt of your letter from Baltimore of June 29, informing me that you had concluded to appoint your nephew, Robert Lucas, a clerk at this armory in the place of Mr. Dangerfield, who now holds that appointment, and requesting my concurrence in the measure. If I could recognize the right which you claim to remove a clerk from the armory and appoint another in his stead, I could certainly offer no objection to the appointment of Mr. Robert Lucas; but my views and impressions as to this right I must say are different from yours. I, as commanding officer of the armory for the time being, claim the right of appointment and dismissal in most of the subordinate positions at the armory, including that of clerk, and in exercising this right I have acted upon the principle never to remove an individual unless for good and sufficient reasons affecting his character or his ability to discharge his duties faithfully. Now, as the conduct of Mr. Dangerfield in all respects has been perfectly satisfactory during the many years that he has filled this situation, I cannot assent to his dismissal.

This matter of the appointment of clerks at the armories I have understood was determined some few years back by high authority, the case being brought up at the Springfield Armory (though there is nothing on record in this office to refer to regarding it). Under the rule established the clerks are essentially armory clerks, liable for duty in any branch of the armory where their services might be required most, under the general direction of the commanding officer, and not removable or appointed but by his authority. Your impressions, however, are different, and, as I do not wish to claim any power or authority not clearly granted, I will refer this matter to Washington with a request to have an early decision upon it.

I am, sir, very respectfully, your obedient servant,

JOHN SYMINGTON,

Major of Ordnance, Commanding.

EDWD. LUCAS, JR., Esq.,

Paymaster and Military Storekeeper, Harper's Ferry Armory.

[Letters to W. D., vol. 9, p. 161.]

ORDNANCE OFFICE,
Washington, October 18, 1847.

SIR: In recent settlements of the accounts of the disbursing officers at several of the arsenals, certain of their vouchers for the payment of 18 cents per day extra to the enlisted men who have been employed as clerks at those arsenals have been suspended at the Treasury, upon observing that paragraph 243 of the Army Regulations of 1841 declares that the allowance authorized by the act of 2d March, 1819, does not apply to men of the Ordnance Department, although this 18 cents is not paid from the appropriation for incidental expenses of the Army, from which the extra pay allowed by that act is drawn, but from the appropriation for ordnance service. It has therefore become necessary that I should ask a decision by you that enlisted men employed as clerks at the several arsenals shall be allowed this 18 cents per day extra during the time they may be so employed, and I have the honor to submit for your approval a regulation to that effect, which will restore to these men an allowance which has existed for many years past and which has not been objected to till now.

In making this request it is proper that I should revert to the fact that the aggregate of the public property at the arsenals exceeds twelve millions of dollars, exclusive of that at the armories, and it is manifest to me that this allowance of 18 cents per day extra to the few men who are detailed for the duty is called for by the necessities of the case, as well as by motives of economy, for it secures a continuance of service exceedingly necessary where so much of a technical character is to be learned before the person can be fully competent to the task.

At all the large arsenals persons are hired specially as clerks at from \$1.50 to \$2 per day, but it is physically impossible for them, working as they do from ten to twelve hours per day, to get through with the immense labor of keeping the books which are required for showing the numerous payments, and the receipts and issues of stores, and in making the *daily* statements of work, and the *monthly*, *quarterly*, and *yearly* returns called for by the regulations. Hence it has long been the practice to detail one, and in some instances two or three, of the enlisted men, who may be found most competent to the task, to assist them, and to allow to such this 18 cents per day for the extra duty, while at the smaller arsenals, where no one is allowed to be hired specially as a clerk, the sole dependence is on some one of the enlisted men to act as clerk, who is allowed this same trifling addition to his pay, and in some instances it has been found necessary to promise it beforehand as an inducement for one who is competent to enlist.

I am sir, &c.,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Hon. W. L. MARCY,
Secretary of War.

[Indorsement.]

WAR DEPARTMENT, October, 1847.

Enlisted men of the Ordnance Department, who are employed as clerks at any of the arsenals shall be allowed eighteen cents per day extra pay, during the time they may be so employed, to be paid from the appropriation for ordnance service, and payments heretofore made for such service, and suspended, will be allowed.

[232 A, 1847.]

WAR DEPARTMENT,
 ADJUTANT-GENERAL'S OFFICE,
Washington, October 28, 1847.

GENERAL: I am directed by the Secretary of War to say that you will please immediately to order an officer of your Department to the Washington Arsenal, to examine the premises with the view of providing suitable accommodations for a general court-martial at that place. The requisite accommodation, would be a room sufficiently spacious for a full court, with some convenient apartment for the accommodation of the witnesses in attendance. The information is required with as little delay as practicable.

I am, general, very respectfully, your obedient servant,
 R. JONES,
Adjutant-General.

To Bvt. Maj. Gen. T. S. JESUP,
Quartermaster-General, Washington, D. C.

[Ex. Doc., 1st Session, 30th Congress, vol. 1, Doc. 8, p. 679.]

ORDNANCE OFFICE,
Washington, November 20, 1847.

SIR: In presenting the annual report of the principal operations of the Ordnance Department for the last fiscal year, I must, before coming to details, state in general that the existence of war during that period has imposed so great an amount of duty as to call for the constant and utmost exertions of all its officers. It is believed, however, that all demands on the department have been promptly answered, and that the quality of its arms and stores is unsurpassed by any which have heretofore been furnished. Of the various supplies provided, the principal of which are more particularly stated in other parts of this report, the batteries of field artillery form an important part. The degree of perfection attained in their construction, is believed to have been fully experienced in our success in the terrible conflicts which have characterized the war in Mexico. The present is deemed a suitable occasion for presenting a brief sketch of the measures taken to improve that arm, or rather to create the system now existing.

It is known that brass cannon have been procured by the government, from time to time, since the beginning of the present century, but their little durability and great cost had always forbidden the idea of their general use; wherefore iron field guns were adopted and used during the war of 1812. Soon after the resuscitation of the Ordnance Department, in 1832, efforts were made, under the orders of the War Department, to devise iron guns suitable for field service, and various patterns were carefully prepared; the best of which sustained the necessary tests, and promised to fulfill all that was required. During the process of experiments with iron guns, it was decided also to attempt the fabrication of bronze artillery, it being necessary to use that material for certain light pieces. A private foundry was selected, and an officer specially charged with the duty of superintending operations, which, in the course of a year, resulted in the manufacture of sound bronze cannon. Others were subsequently improved in their alloy and perfected in their proportions, and the unexpected bursting of one or two

of the new iron field guns about that time, without an apparent or adequate cause, led to the adoption of bronze field artillery.

The gun-carriages, caissons, and other parts of the field train have been carefully adjusted and established by the ordnance board, from time to time, under the orders of the War Department, and also the mode of preparing the ammunition, equipments, and supplies, including the percussion lock and primer: the whole forming our present system of field artillery.

Having thus provided a suitable *material*, the general-in-chief was induced, in 1842, to order a regular course of practice with field batteries. A liberal allowance of ammunition for target firing was supplied; and this practical instruction, joined to the previous sound theoretical education of the officers, has resulted in giving to the *personnel* of our artillery a degree of skill never surpassed.

The great quantity of arms and ordnance stores which it has been necessary to prepare and issue has compelled me to keep most of the ordnance officers at the arsenals on their appropriate duties. As many have been sent to Mexico as could possibly be spared for service in the field, although they constitute but a small portion of those who are anxious to participate in the labors, dangers, and glories of the armies in that country. Of the thirty-six officers composing the corps, an average of thirteen have been on service in Mexico.

Gun-cotton, the knowledge of which had just reached this country at the date of my last report, has been submitted to experiments to test its fitness as a substitute for gunpowder. The limited trials made have not shown it to be well adapted to use in fire-arms. Its explosive force, or bursting effect, is far greater than that of gunpowder; its nature, in this respect, assimilating more to that of fulminates, a property which seems well suited to mining purposes.

Taking up the subjects in the order usually followed, the following presents a summary of the principal operations of this department during the past fiscal year:

FUNDS.

Amount, as by last year's report, undrawn from the Treasury on the 1st of July, 1846	\$237, 567 90
In hands of disbursing officers same date	61, 737 93
Amount of appropriations for the fiscal year 1847, including the fixed annual appropriation for arming and equipping the militia	2, 191, 900 52
Received during the year from sales, rents, and for damages to arms in hands of troops	23, 622 25
	<hr/>
	\$2, 514, 828 60
	<hr/>
Amount of expenditures during the year	\$1, 973, 364 95
Balance of the appropriation for mineral lands transferred to the Treasury Department	16, 716 05
In hands of disbursing officers June 30, 1847	98, 540 53
Remaining in Treasury undrawn June 30, 1847	426, 207 07
	<hr/>
	\$2, 514, 828 60
	<hr/>

ARMAMENT OF FORTIFICATIONS.

Out of the appropriation for this object there has been expended, during the fiscal year, the sum of \$181,646.13.

The principal articles procured by purchase and fabrication are the following, viz: 25 32-pounder cannon; 1 12-inch columbiad; 34 8-inch columbiads; 20 8-inch siege howitzers; 124 24-pounder howitzers, for

flank defense; 187 seacoast and garrison gun-carriages, complete; 116 seacoast and garrison upper carriages; 42 seacoast and garrison chassis; 8 10-inch mortar beds; 971 8-inch shells; 93 12-pounder shells; 3,544 8-inch cannon balls; 35,693 grape shot of different calibers; 27,279 cubic feet of gun-carriage timber.

Arrangements have been made for procuring further supplies of gun-carriage timber. The necessity of placing at the arsenals of construction this material, on a liberal scale, will be obvious when it is stated that at least three years' seasoning is absolutely required before it can be used for constructions of this kind; and it is much improved by being kept five years.

There have been sent to the different fortifications, during the past year, 26 pieces of ordnance and 53 gun-carriages and mortar beds. Work on account of the armament of fortifications has been partially suspended during the year in consequence of the more pressing demands for arms, ammunition, and other ordnance supplies for the troops in the field; and the estimate, under this head, for the next fiscal year, does not contemplate its resumption to anything near the capacity of our arsenals of construction.

The minute inspection of the metal of iron cannon, which had been manufactured and received before the establishment of the present regulations for the government of founders employed by this department in their fabrication, has been completed. The necessity for, and advantages of, this inspection were stated in my last annual report. It proves conclusively the insufficiency of the powder proof alone as a test. The number of cannon which have been examined is 2,808; all of which have been classified according to the respective values of the tensile strength, density, and character of fracture given by a sample from each gun. This classification, according to the apparent quality and strength of metal, will be further tested by a comparative trial of several guns of each class, and of various calibers, from each foundry, which should be proved to extremity, some with service and others with increased charges, in order to ascertain both their relative and their absolute endurance. The report of the officer having the immediate superintendence of this work, which is conducted under the general direction of Colonel Bomford, is appended, and will show fully what has been done in this matter. Attention has been given to the armament of several of the forts which required repairs, and pent houses furnished to protect the carriages.

ORDNANCE, ORDNANCE STORES, AND SUPPLIES.

The expenditures from the appropriation under this head during the fiscal year have amounted to \$570,161.52.

The principal articles procured by purchase and fabrication are as follows, viz: 10 10-inch siege mortars; 10 24 and 12 pounder siege gun carriages; 32 field gun-carriages; 20 mountain howitzer carriages; 10 caissons; 40 traveling forges; 41 battery wagons; 705 sets of artillery harness for two horses; 29,869 cannon balls, different calibers; 35,052 shells, different calibers; 92,740 pounds cannister shot, different calibers; 25,487 spherical case-shot, different calibers; 26,611 rounds of ammunition for cannon, of different calibers; 3,752 sabers and swords of the various kinds; 22,150 sets of infantry, rifle, and cavalry accouterments complete; 7,071 cartridge-boxes; 9,225 cartridge-box belts; 6,155 bayonet scabbards; 4,875 gun slings; 18,200 brushes and picks; 564 rifle pouches; 2,278 belts of various kinds; 1,487 pairs holsters and housings; 12,150,811

cartridges for small-arms; 3,961,054 percussion caps; 1,129,151 pounds of lead; 861 pounds laboratory paper; and 3,363 cubic feet of timber.

There have also been procured during the fiscal year, by purchase and by fabrication at the arsenals, the following ordnance supplies, which have been paid for out of the appropriation for "Mexican hostilities": 15 24-pounder guns; 6 8-inch guns; 3 12-pounder siege guns; 19 8 and 10 inch siege mortars; 15 12 and 24 pounder field howitzers; 24 mountain howitzers; 41 beds for 8 and 10 inch mortars; 108 gun-carriages of different descriptions; 36 caissons; 24 traveling forges; 4 battery wagons; 279 sets of artillery harness for two horses; 20,523 cannon balls, different calibers; 89,347 shells for mortars, columbiads, and cannon; 2,294 grape shot; 6,940 spherical case shot; and 62,214 pounds of canister shot of different calibers; 53,218 rounds of ammunition for siege and field guns; 2,510 cavalry sabers; 500 non-commissioned officers' swords; 22,350 sets of infantry, rifle, and cavalry accouterments; 17,379 cartridge boxes; 32,073 belts of various kinds; 9,584 bayonet scabbards; 12,488 gun slings; 41,488 brushes and picks; 428 rifle pouches; 3,207 pairs of holsters and housings; 298,726 pounds of musket, rifle, and cannon powder; 13,529,592 cartridges for small-arms; 3,326,682 percussion caps; 41,159 pounds laboratory paper.

PURCHASE OF SALTPETER AND BRIMSTONE.

During the fiscal year there has been expended from this appropriation the sum of \$40,064.94. It has been applied to the purchase of 458,666 pounds of fused saltpeter and 100,000 pounds of brimstone. The stock of these materials, which have been provided and laid up in store during several years past, now amounts to 3,368,681 pounds of saltpeter and 734,560 pounds of sulphur, enough to make about 45,000 barrels of new powder.

PURCHASE OF GUNPOWDER.

The expenditures from the appropriation under this head have been \$100,000.

The following quantities have been procured therewith: 468,182 pounds cannon powder; 162,506 pounds musket powder; 83,978 pounds rifle powder; 10,000 pounds pulverized niter, and 5,000 pounds meal powder.

NATIONAL ARMORIES.

The expenditures at the armories during the fiscal year have been as follows, viz:

	Harper's Ferry.	Springfield.	Total.
For the manufacture of arms, appendages, component parts, gauges, tools, &c., and purchase of materials for the same.	\$207, 478 34	\$218, 675 05	\$426, 153 39
For repairs, improvements, and new machinery	55, 346 27	34, 629 79	89, 976 06
	262, 824 61	253, 304 84	516, 129 45

There have been made during the same period at Harper's Ferry Armory 12,000 percussion muskets with 39,809 appendages for the same, consisting of ball screws, screw-drivers, wipers, spring vices, extra cones, and cone picks; and 3,054 percussion rifles with 11,408 appendages, consisting of like articles as those for the muskets. There have been made at the Springfield Armory during the same period 14,300 percussion

muskets and 201 musketoons with 56,275 appendages for the same, similar to those above mentioned.

For a more particular account of the manufacture of arms and other work done at these armories, I refer to the statements from their respective commanding officers accompanying this report. The estimates for the manufacture of arms for the next fiscal year contain the amount heretofore usually appropriated for that object.

ARMING AND EQUIPPING THE MILITIA.

There has been expended during the fiscal year, from the standing appropriation for this object, the sum of \$163,039.97. The principal articles obtained for the same by purchase and fabrication at the arsenals are as follows, viz: 80 6-pounder bronze cannon; 19 12-pounder bronze howitzers; 4 4-pounder carriages and 16 caissons, with implements and equipments; 40 sets of artillery harness for two horses; 1,440 muskets, with appendages; 2,700 percussion rifles; 1,500 percussion carbines; 3,750 percussion pistols; 20 cadet swords, and 912 cubic feet of timber for field carriages.

The apportionment of arms due to each State and Territory under the act of 1808 is made annually in this office, according to the number of effective militia included in the latest returns from each, and issues are made to the amount of the apportionment in such arms and equipments, of the prescribed models, as the proper authorities of the States and Territories may request. Statements A and B, hereto appended, exhibit the last apportionment and issues thus made. From the first of these statements it will be seen that some of the States have not made returns for several years, and as these returns are the only data on which the apportionment can be made, it is probable that these omissions diminish the quotas of such States, and that they do not receive as much as their actual effective militia force entitles them to. The fault in such cases lies with the States, and the only remedy is greater attention to regularity in making their returns.

ISSUES TO TROOPS IN THE FIELD.

The following statement exhibits the principal articles which were issued to troops ordered to Mexico, both of the Regular Army and volunteers, or sent to that country for issue to the troops already there, from the 30th of June, 1846, the time embraced in my last annual report, to the 30th of June, 1847, the time to which all the other matters treated of in this report are brought up, viz: 21 18 and 24 pounder siege cannon, 14 8-inch siege howitzers, 50 8 and 10 inch siege mortars, and 9 coehorns, with carriages and beds, implements and equipments complete; 28 6 and 12 pounder bronze field cannon, 14 12 and 24 pounder bronze field howitzers, and 14 12-pounder mountain howitzers, with carriages and beds, implements and equipments, complete; 42 caissons; 18 traveling forges; 19 battery wagons; 919 sets of artillery harness for two horses; 21,400 rounds of ammunition for siege artillery; 30,373 rounds of ammunition for field artillery; 67,045 8 and 10 inch shells for mortars; 1,000 cannon balls, loose; 414,500 pounds of powder, besides that in the above rounds; 20,000 cannon primers; 1,328 war rockets; 24,530 muskets; 3,720 rifles, with their appendages; 2,190 carbines; 1,110 pistols, with their appendages; 2,140 cavalry and horse artillery sabers; 1,935 non-commissioned officers' and musicians' swords; 22,090 sets of infantry accouterments; 3,720 sets of rifle accouterments;

2,990 sets of cavalry accouterments; 12,951,000 cartridges for small-arms; 417,000 flints for small-arms; 1,022,400 percussion caps for small-arms.

ARSENALS AND DEPOTS.

The amount expended from the appropriation for "arsenals" during the fiscal year was \$91,349.64.

Expenditures from this fund have been strictly applied to the accomplishment of the objects stated in the estimates on which the appropriation was made. These objects include all repairs and improvements at the arsenals of a permanent character, as also additions to, or alterations of, old buildings and the erection of new ones. The work done under this head, at the principal arsenals, is more particularly shown in the statements of their commanding officers, appended to this report.

Besides the permanent armories and arsenals, depots for supplying the troops in the field have been established at Point Isabel, Camargo, Monterey, Saltillo, and Vera Cruz, in charge of officers of this department.

The regular examination of all articles in store at the permanent establishments has been made, and the annual inventories prepared and forwarded to this office. These inventories show each article that has been received during the year and how obtained; each article that has been taken therefrom and how disposed of; with the number or quantity of each remaining on hand and its money value.

These inventories, for the 30th of June, 1847, exhibit the following aggregates:

Lands, magazines, storehouses, quarters, barracks, workshops, and machinery	\$4,211,447 27
Artillery of every description, with carriages, implements, and projectiles	2,554,874 81
Small-arms of every description, with their appendages and accouterments	8,430,473 12
Ammunition of all kinds, including powder and materials for its manufacture	921,061 31
Component parts of artillery carriages and equipments, and of small-arms and accouterments	332,691 15
Unwrought materials and tools in store	600,187 21
Guns, carts, implements, and tools of every description in current service	313,406 90
Total	17,364,141 77

In making up the estimates for "arsenals" for the next fiscal year, the most important only of the objects asked for, in the respective estimates of their commanding officers, have been included.

The only item of the estimate for the ensuing year, having special reference to a continuance of the war with Mexico, is that for the purchase of ordnance, ordnance stores, and supplies. It is based on the force now in service, and any material change therein will require special estimates, which will be prepared accordingly.

I have no delinquency to report on the part of any officer or agent of this department, in rendering their accounts for the public money or property in their charge.

MINERAL LANDS.

I have now to make a final report on the subject of these lands, the management of which has, for twenty-six years past, formed part of the subjects treated of in the annual report from this bureau.

A full transfer of the supervision of these lands has been made since my last annual report, in obedience to your orders, founded on the

request of the Secretary of the Treasury, pursuant to the acts of Congress of the 11th July, 1846, and 1st and 2d of March, 1847, as follows:

Mineral lands of Lake Superior and of the Mississippi above Prairie du Chien.

On the 22d of March last, all the leases, permits, maps, and other papers on file in this office relating to the Lake Superior lands, except letters, were transmitted to the Commissioner of the General Land Office, and on the 30th of the same month those relating to the Mississippi lands. On the 3d of April I reported to you that all of the undrawn balance of the appropriation for the mineral land service remaining in the Treasury, amounting, as it appeared from the accounts in this office, to \$16,716.05, might be placed at the disposal of the General Land Office. And, on the 14th of that month, I transmitted to the Commissioner copies of all the instructions which had been issued, from time to time, in relation to these lands. In the latter part of June the agents of this department, who had been left in charge of the offices at Sault Ste. Marie and Copper Harbor, transferred the papers, surveying instruments, boats, &c., in their charge to the agent of the General Land Office, who then came to receive them, and by the 30th of that month the transfer had been completed, and the only two remaining agents of this department for these lands were discharged.

Mineral lands in the south part of Illinois and in the State of Arkansas.

My last annual report referred to the fact of these lands having been proclaimed for sale, under the act of 11th of July, 1846, and of our having no agents in charge of them. On the 11th of July last, I transmitted to the Commissioner of the General Land Office the only two leases which had been executed for any of them, being those for tracts in the south part of Illinois, in order that the rent which should be found due might be collected by that department.

Mineral lands in the Galena district.

The reasons for the renewal of the expiring leases in this district, so as to make them run to the days fixed by the proclamation for the sale, were stated in my last annual report, at which time fifty-four (54) had been so renewed. The day fixed for the sale of those in Iowa was 8th of March, 1847; for those in the north part of Illinois, 5th of April, and for those in Wisconsin, 24th of May; and from returns received after the date of that report it appears that one hundred and seventy (170) more were in like manner renewed, viz: two in Iowa, one hundred and twenty-six in Illinois, and forty-two in Wisconsin.

In addition to the leases above mentioned, there were one hundred and fifty-one (151) others granted prior to the act of 11th July, 1846, which would not expire by the time fixed for the respective sales, viz: one in Iowa, ninety-eight in Illinois, and fifty-two in Wisconsin; and the lands covered by these leases being excluded from the sales by the proclamations and by the act, unless voluntarily surrendered, or otherwise legally extinguished, I directed the superintendent (after consulting the General Land Office) to turn them over to the receivers of the respective land offices, upon their call for the same, together with a statement of the rents due thereon. It is understood that many, if not all, of these were relinquished.

It becoming at length apparent from the returns that very little more of the outstanding balances of rent could be obtained without resorting to suits, and that the expenses would amount to as much as would probably be received, orders were given for closing the office at Galena on the 31st of August, and for transferring the books and papers to this city. They are now lodged in this office, and every person employed on duties connected with the mineral lands, under the authority of the War Department, has been discharged.

In my last annual report I gave a condensed statement of the whole receipts and expenditures of the land mine agency, since the transfer of the supervision of those mines to this office in the year 1821, which exhibits a net balance of receipts beyond expenditures of.....	\$84,902 07
Since the date of that report there has been received the further sum of	\$5,487 52
And there has been paid for expenses of every kind, including arrears	3,995 47
	<hr/> 1,492 05
Total net balance	86,394 12

GEO. TALCOTT,
Lieutenant-Colonel Ordnance.

Hon. W. L. MARCY,
Secretary of War.

*Statement of the principal operations at the arsenals during the year ended
June 30, 1847.*

* * * * *

WASHINGTON ARSENAL.

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3.—*Hale's rockets.*

In the month of December last, a war-rocket of a new kind, invented by Mr. Hale, of England, was offered to the notice of our government, and a mixed board of officers of the Army and Navy was appointed to test the invention.

Experiments were accordingly made with some of Mr. Hale's own rockets, and with others made at this arsenal, according to his specification; the results of these trials were so satisfactory that, on the recommendation of the board, the right of using the invention was purchased by the government.

The peculiar advantage of this new projectile is that of having its directive force in the body of the rocket, thus dispensing with the use of the cumbrous stick attached to the congrue rocket. About 2,000 of these rockets of the calibers of $2\frac{1}{4}$ and $3\frac{1}{4}$ inches have been made at this arsenal, and the trials which have taken place, from time to time, seem to confirm the favorable opinion at first formed, that in extent of range and accuracy of direction they are equal, and perhaps superior, to the common rockets of equal size. A report of the trial of those which have been sent into the field is looked for with interest.

4.—*Experiments with gun-cotton.*

The discovery of explosive cotton, announced last year by Professor Schönbein, naturally attracted at once the attention of the military

world, and when a patent for the invention was taken out in this country, the new compound was subjected to trial at this arsenal, in order to compare its effects with those of gunpowder, and to ascertain the practicability of using it in fire-arms.

Under date of December 3d, 1846, I had the honor to make the following report of those experiments:

"Having pursued my experiments on *gun-cotton* to a point at which it appears to me that some conclusions may be safely drawn from them with regard to the application of this new explosive compound to military purposes, I have now the honor to present a full report of the experiments, with such remarks as they have suggested to me, for the information of the Ordnance Department.

1st. Wishing to try the explosive cotton in a large cannon, as well as in the musket, I prepared (according to Schönbein's formula which had been made known to me) as much of it as my other pressing engagements left me time for. Having no special apparatus for this purpose, I could not conveniently prepare more than about three pounds, which was the product of two pounds of cotton; the increase of weight by the process of preparation being about 50 per cent.

I was not aware, until instructed by experience, that in the preparation of a considerable quantity of cotton (say one pound), at one time, some part of the cotton is liable to be decomposed, in consequence of the heat evolved in the process: by this cause a part of the cotton which I prepared may have been slightly impaired in quality, although the decomposition did not appear to extend far beyond the point where it first manifested itself, and the portion of cotton immediately above that point was carefully separated from the rest. I have distinguished five specimens of the cotton prepared at the arsenal, which are designated by Nos. 1 to 5. No. 1 was a small portion of the most inferior kind, taken from the immediate neighborhood of that which was decomposed by the acid; No. 2 was one pound of cotton but slightly affected by the action of decomposition; No. 3 was a nearly equal quantity, not so good as No. 2; No. 4 was prepared with the same acid as No. 2, used a second time; No. 5 was about two ounces, very carefully prepared, and may be considered as a perfect specimen of the explosive cotton.

Besides these I was furnished with small samples prepared for trial by other persons. Those designated as D 1 and D 2 were prepared without the knowledge of Schönbein's formula; the two others, designated by the letters F and P, were made according to that formula; the latter had been immersed in a solution of saltpeter.

2d. The following table exhibits the mean results of the trial of these several kinds of *gun-cotton* by means of the musket-pendulum, including also the former trial of the sample received from Professor Schönbein himself:

Trial of gun-cotton with the musket-pendulum.

Date.	Kind of cotton.	Number of rounds.	Charge of cotton.	Height of the charge in the barrel, ball and wad included.	Initial velocity of the ball.	Remarks.	
1846.			Grains.	Inches.	Feet.		
November 12	Schönbein's	1	30	1.6	971	The balls were 17 to the pound, having 0.04 inch windage. They were wrapped in cart-ridge-paper, as in service, and the height of the ball and wad of the paper is $\frac{3}{4}$ inch.	
	do	1	60	1.8	1,426		
	do	1	60	2.5	1,567		
	do	1	50	2.6	1,489		
November 17	D. 1	1	30	2.1	1,151		
	do	1	60	2.9	1,684	The cotton burns without smoke, and with a very slight acid odor; very little residuum remains in the barrel, and it is easily wiped out. The report is sharper than that of gunpowder.	
	do	1	60	2.75	1,651		
	do	2	40	2.75	1,421		
December 2	F.	1	60	3	1,654		
	P.	1	60	3	1,690		
	Made at arsenal. . .	1	60	3	1,558	The report is sharper than that of gunpowder.	
	do	3	1	60	3		1,713
	do	4	1	60	3		1,591
December 2 and 3 ..	do	5	3	60	3		1,688
December 3	do	5	2	60	2.5		1,688
	do	5	2	60	2.1	1,627	
December 2 and 3 ..	D. 2	3	60	3	1,712		

The comparative trials made with equal charges of the same cotton, differently compressed, show, as might have been anticipated, that a *slight* degree of compression is most favorable to the development of the force of the charge, the greatest effect being produced when the charge of cotton occupies about four times the space of an equal weight of gunpowder; but the force is not very much diminished when the charge of 60 grains of cotton is compressed into the space of 150 grains of gunpowder, which is as great a degree of compression as I could readily give it with a wooden rammer. The uniformity of the results, with the same kind of cotton, appears to be satisfactory.

The mean velocity of the ball in 17 rounds, with 60 grains of gun-cotton of good quality, is 1,670 feet in a second, and the mean of 48 rounds with 120 grains of good musket powder, proved during this year, is 1,600 feet; hence it appears that the projectile force of the gun-cotton, in small arms, is about double that of good fine-grained powder, and that the service charge of gun-cotton for the musket would be 60 grains. To judge from the *extent* of the vibration of the musket pendulum, it would seem that the reaction of this charge is nearly the same as that of the ordinary service charge of gunpowder; but, although no accident has occurred from the use of this charge in the experiments, I did not consider it prudent to fire with it from the shoulder, as we are not yet acquainted with the *explosive* force of the cotton.

The musket barrel is very slightly warmed by the explosion of the charge of 60 grains.

3d. The next experiments were made with the 24-pounder gun pendulum and its ballistic pendulum. The gun was carefully cleaned, and the charge of cotton inserted loose, and then compressed with the rammer, so as to occupy the space of a cartridge, containing about eight times the weight of gunpowder; the bulk of even the moderate charges which were used is so great that I thought it should be very little compressed to permit of the rapid communication of the flame to the whole mass; perhaps a greater degree of compression would have increased the force of the charge, but there would also have been greater risk of straining the gun.

The following table shows the result of this trial of gun-cotton in the 24-pounder gun :

Date.	Kind of gun-cotton.	Charge.	Height in the gun.		Initial velocity of the ball.	Remarks.
			Gun-cotton.	Whole charge.		
1846.		Pounds	Inches.	Inches.	Feet.	
December 2.....	No. 2	1	9	14.7	1,087	} Weight of ball, 24½ pounds; windage, 0.135 inches.
	Nos. 3, 4, and F....	2	18	23.5	1,422	

The quantity of cotton prepared for the experiment was sufficient for only one round with each of the above charges.

There was no smoke from the discharge, and only a slight acid odor ; the residuum left in the bore was easily removed with a clean sponge, which was very little soiled by it ; a thermometer inserted in the bottom of the bore, immediately after the second discharge, indicated an increase of temperature of not more than 1°. To those near the gun the report seemed to be sharp and loud, but persons at a distance of 200 or 300 yards represented the sound as being very slight, far less than that made by the charge of 4 pounds of gunpowder, with which the same gun is often fired, and even less than that of a 6-pounder gun in a salute.

None of the cotton was seen to be expelled from the gun unburnt.

In comparing the effects of the above charges with those of gunpowder, I find that the mean velocity of the ball in 23 rounds, from different samples of good cannon powder which I have proved this year, is, with 4 pounds of powder, 1,427 feet, being almost exactly the same as that (1,422 feet) given by the charge of two pounds of gun-cotton. I have no direct experiments with gunpowder showing so low a velocity as 1,087 feet, which is given by one pound of gun-cotton, the smallest charge which I have used being three pounds, which gives a mean velocity of about 1,250 feet ; but by analogy it is known that a charge of $2\frac{1}{4}$ pounds of the same gunpowder would give a velocity of 1,087 feet. It appears, therefore, that the projectile effect of one pound of gun-cotton in a cannon is equal to that of $2\frac{1}{2}$ pounds of cannon powder, and the effect of two pounds of the former equal to that of four pounds of the latter, being nearly the same proportion as in the musket.

4th. From comparing the recoil of the gun pendulum with the vibration of the ballistic pendulum. I conjectured that the explosive or bursting effect of the gun-cotton is much greater, in proportion to its propelling force, than that of gunpowder. Not having a sufficient quantity of the cotton to test this opinion by trial with a cannon, I made some experiments to-day with musket-barrels, in order to determine the important point whether gun-cotton can be safely used, when exposed to the ordinary accidents of service, in the hands of troops.

For this purpose I made use of three Harper's Ferry musket-barrels, of the same kind as the one employed in proving the gun-cotton with the musket pendulum, which appears to be still uninjured. Having determined by my experiments that 60 grains would be the proper charge of gun-cotton to give the requisite force to the musket-ball, I made the following trials :

First. A barrel was loaded with 120 grains of gun-cotton, occupying a space of three inches in length, and with one ball and one wad. It burst at the breech.

Second. Another barrel was loaded with two charges of 60 grains, one ball and one wad, one on the top of the other, as if a soldier had (as frequently happens) loaded twice before firing: the charge occupied altogether a height of $4\frac{1}{2}$ inches in the barrel. The barrel burst, losing a large piece extending to the place of the second ball. The upper charge of cotton, or a greater part of it, was blown out at the side, unburnt.

Third. A third barrel was loaded with 60 grains of cotton, two balls and two wads, occupying a height of three inches. At the first discharge the barrel appeared to be a very little swelled at the seat of the charge. It was again loaded in like manner, when it burst.

These barrels had all borne the regular proof charge at the armory. They have some slight defects, but they are of recent make, and it is believed quite equal to the greater part of those in the hands of the troops. When it is recollected that the proof charges of gunpowder are: 1st, 390 grains of powder, one ball of 15 to the pound, and two wads; 2d, 318 grains of powder, one ball of 15 to the pound, and two wads; and that a musket-barrel will bear, without injury, the explosion of two, three, or even four cartridges at a time, further comment with regard to the relative explosive force of gunpowder and gun-cotton appears to be unnecessary. Without a modification of this agent, or a great change in our fire-arms, the use of gun-cotton, for military purposes, is not to be recommended.

5th. A 12-pounder shell, having a brass fuse, was loaded with two ounces of gun-cotton and fired; it burst into many fragments.

6th. To try the effect of compressing the cotton in a small space, I stuffed about 15 grains of it into a 12-pounder fuse (the canal of which is 0.45 inch in diameter and 3 inches long), pressing it in merely with the handle of a steel pen. It burnt for about nine seconds with a bright flame, which was extinguished, however, before the cotton was quite consumed, the remainder burning like a slow-match. A fuse of the same length filled with mealed powder burns six seconds.

7th. I have placed some of the cotton in a damp vault to try the effect of exposure to moisture on its strength. The result of this trial will be duly reported.

As the opinion which I then formed, with regard to the unfitness of the explosive cotton for use in fire-arms, appears to have been confirmed by experiments in various parts of Europe, I have not thought it necessary to pursue further the investigation of its qualities. The results of experiments may be briefly summed up as follows:

1st. The explosive cotton, well prepared according to Schönbein's formula, burns at a heat of 380° Fahrenheit, and will, therefore, not set fire to gunpowder. By other modes of preparation, it may be made to explode at a much lower temperature; great precaution should, therefore, be used in drying it.

2d. The *projectile force* of explosive cotton, in moderate charges, in the musket or in the cannon, is nearly equal to that of twice its weight of the best gunpowder.

3d. When compressed by hard ramming (as in filling a fuse) it burns slowly, and after a short time it produces little or no flame.

4th. By the absorption of moisture its force appears to be rapidly diminished, but is probably quite restored by drying. A sample of cotton, of which 60 grains gave to a musket ball a mean initial velocity of 1,688 feet, was exposed for two weeks in a cool, damp vault, where it absorbed about two per cent. of moisture; 60 grains of the cotton in that state gave a mean velocity of 1,612 feet.

5th. Its *explosive force* or bursting effect is, in a high degree, greater than that of gunpowder. In this respect the nature of gun-cotton assimilates much more to that of fulminates than to gunpowder; it is, therefore, well adapted to mining purposes.

6th. Gun-cotton, when well prepared, leaves no perceptible stain when a small quantity is burned on white paper. The principal residue of its combustion are water and nitrous acid; the acid is made sensible by its odor, and its effect on the barrel of a gun, which will soon be corroded by it, if not washed after firing.

7th. In consequence of the quickness and intensity of action of the gun-cotton when ignited, it cannot be used with safety in our present fire-arms. It appears by experiments that an accident of service, such as that of inserting two charges into a musket before firing (which is of frequent occurrence), would cause the barrel to burst; and from the repeated bursting of pistols and other small arms, with small charges, there is no doubt that the barrels of our small arms would be destroyed by a few rounds, even with service charges.

The discovery of gun-cotton having given a new stimulus to the invention of substitutes for gunpowder, several of these compounds have been offered to notice during the past year, and some of them have been tried at this arsenal; but as their composition has not been made known, it is deemed unnecessary to take any notice in this report of the results of the trials, further than to say that they have been altogether unfavorable as to the utility of the proposed inventions for military purposes.

A. MORDECAI,
Captain of Ordnance.

EXAMINATION OF IRON ORDNANCE BY LIEUT. WALBACH.

Extract from his report for the year ended 30th June, 1847, of his experiments to test the cannon in the several forts and arsenals in the United States.

The experiments for testing the strength and quality of the cannon, at the several forts and arsenals throughout the United States, have, within the past year, been completed.

This duty has been continually in progress since the spring of 1845, during which time the specific gravity and tensile strength of samples from 2,808 cannon of different calibers have been determined, and the cannon themselves classified, in accordance with the quality of the metal, as exhibited under the tests applied.

The order of the experiments connected with this re-examination of the cannon in service has been as follows:

Programme of experiments.

1st. The determination of the specific gravity of a sample taken from the muzzle of each gun. 2d. The determination also of its tensile strength. 3d. An examination of the surface of fracture, with a description of its color, structure, and any peculiarity of character that might present itself; and 4th. A subsequent proof to extremity, by gunpowder and hydrostatic pressure, of certain cannon affording under the tests applied, results of a different nature as yet but partially applied.

Proper machines having been provided, the first trials for this purpose were made during the spring of 1845, with the cannons at Fort Monroe, Virginia. The results obtained from the 544 guns at this post were satisfactory and interesting; and were deemed sufficiently so by the department to justify the prosecution of a similar mode of examination to the others in service.

A great difference was observed in the character of the metal of different guns, as well in strength and density as in the appearance presented by the fracture: the quality of the cannon was found also to depend upon the values exhibited by these tests: and it became necessary therefore to establish a system of classification by which they could be properly arranged and designated. To do this it was required, in the first place, to define the lowest limit of strength admissible to a gun of the first class; next, to determine the highest limit of such as were to be rated to a third class, while all others of an intermediate quality would then properly come under the head of an intervening or second class.

By referring to the experiments on the tenacity of the iron cannon recently cast at Boston, under the revised regulations, the lowest strength thereby afforded was found to be 24,500 pounds to the square inch; and as these guns were doubtless of a superior quality, any value within that limit was deemed compatible with safety. My own trials, confirmed by proof to extremity, enabled me to determine the quality of such as were to be rated to an inferior grade, and the three classes which have thus been arranged are here defined as follows:

The first class comprises all such cannon as afforded to a certain value of strength and density, a corresponding character of fracture. They possessed, it was thought, sufficient strength and endurance to be regarded as among the best in service of their date.

The second class included those which, though above the limit of the third class, are either deficient in one or more of the properties required for the first class, or involved some case of discrepancy or doubt; while under the head of a third class were arranged such as exhibited an inferior quality of metal.

A condensed statement of the account of work done since the commencement of the experiments, is contained in the following table, which exhibits also the present condition of the armament of the seacoast.

TABLE I.

Description of the cannon cast prior to the revised regulations of 1840, the metal of which has been minutely examined as to specific gravity, tensile strength, and character of fracture.

Forts and arsenals.	Description of cannon.									Total.
	8-inch columbiads.	10-inch S. C. howitzers.	8-inch S. C. howitzers.	42-pounds.	32-pounds.	24-pounds.	18-pounds.	12-pounds.	10-inch mortars.	
Fort Preble, Portland, Me.						12				12
Fort Constitution, Portsmouth, N. H.						20				20
Fort Independence, Boston, Mass.					50	20				70
Fort Adams, Newport, R. I.					100	42				142
Fort Wolcott, Newport, R. I.						7				7
Fort Griswold, New London, Conn.					12	3				15
Fort Niagara, head Lake Ontario, N. Y.							6			6
Fort Ontario, Oswego, N. Y.							7	10		17
Fort Columbus, New York Harbor			5		58	26				89
Fort on Bedloe's Island, New York Harbor					12					12
Fort on Ellis's Island, New York Harbor			2		10					12
Fort Hamilton, New York Harbor					33	26				59
Fort La Fayette, New York Harbor					72	23				95
Fort Mifflin, Philadelphia, Pa.					30	28				58
Fort McHenry, Baltimore, Md.			7	19	30	24				80
Fort Washington, Md.						30				30
Fort Monroe, Old Point Comfort, Va.				39	414	121				574
Fort Macon, Beaufort, N. C.						17				17
Fort Caswell, Smithville, N. C.						20				20
Fort Moultrie, Charleston, S. C.			5		14	16				35
Fort Pulaski, Savannah, Ga.					20					20
Fort Pickens, Pensacola, Fla.					64	56				118
Fort McRee, Pensacola, Fla.			10	24	24	64				122
Fort Barrancas, Pensacola, Fla.			4		11	10	5	3	2	35
Fort Morgan, Mobile Point, Ala.					64	15				79
Fort Pike, Lake Pontchartrain, La.						28				28
Fort Wood, Pass-Chef-Montenm, La.						28				28
Fort Jackson, mouth Mississippi, La.					16	26				42
Fort St. Philip, mouth Mississippi, La.						10				10
Battery at New Bedford, Mass.						9				9
Battery of the calets, West Point, N. Y.	2		1	1		1				5
Battery on Bicentennial Bayou, La.						10				10
Batteries on Staten Island, New York Harbor					37					37
Allegheny Arsenal, Pittsburg, Pa.					15	32				47
Baton Rouge Arsenal, La.					49	17				57
Castle Williams, New York Harbor				26		18				44
Castle Pinckney, Charleston, S. C.			2	4		14				20
Tower Dupre, Lake Borgne, La.						4				4
Ordinance Depot, New York Harbor	29	1	25	32	50	99				236
Washington Arsenal, D. C.			44	73	207	160	1	2		487
Total										2,808

In addition to the foregoing, several trial guns and cannon, of foreign manufacture, have also been tested; which, together with duplicate samples taken from some of the guns where there was a doubt, or chance for error, will probably make the number of experiments to exceed 3,000.

To collect the samples of the 2,808 cannon, scattered as they were throughout the country—to transport the heavy machines required for that purpose—to mark the specimens, with the number and caliber of the guns from which they were taken, and to reduce them, under the lathe, to the proper form and dimensions, preparatory to trial, has consumed a considerable portion of the time allotted to the experiments.

The cavity or perforation left in the face of the muzzle by the abstrac-

tion of the trial sample has, in every instance, been filled with a composition of sal ammoniac and iron turnings, compactly driven in the moist state. This filling leaves no trace of disfiguration on the surface of the gun, and, as has been previously reported, sustains both the effects of weather and the heaviest shocks of firing uninjured.

The following abstract from table No. 1 will exhibit the general classification of the cannon in service, cast prior to the revised system of 1840.

TABLE II.
General classification of cannon in service.

		<i>Per cent.</i>
First class	1,239	44.124
Second class	932	33.191
Third class	637	22.685
Total	2,808	100.000

With regard to the guns of the second class, of which it appears there are about 33 per cent., it should be remarked that in quality they are equal to several of the foreign cannon lately procured by the United States, and although not so good as those of their own date, which have been arranged to the first class, they are still considered serviceable, and in certain positions, as on fronts not liable to attack, may remain with security until conveniently replaced.

Nearly one-half, or 44 per cent., of the guns thus re-examined have rated to the first class; they are reported as among the best in service of their date, though not of that uniformly superior character belonging to those cast by the Ordnance Department under their present revised regulations.

The several private foundries of West Point, Pittsburg, Georgetown, D. C., and Bellona, near Richmond, have been employed at different periods, from 1827 to 1840, in casting the 2,808 cannon thus reported.

A marked difference is perceptible in the quality and appearance of the metal from the different foundries, and it seems as if there belonged to each a peculiar type or character of fracture to distinguish it from the rest. For instance, the guns of the Bellona foundry are generally of a high mottle, with the lighter portions of the mottle of a silvery white color. The character of those from the Columbian foundry are also of a mottle, rather high, but less so than the guns of the Bellona foundry, and also with less of the silvery aspect; the metal of both foundries is accompanied by a high degree of density.

The guns from the West Point foundry are of a darker mottle, with the fracture inclining to a gray, or a mottled gray; the value of their specific gravity is not so high as the foregoing, but the metal still possesses a fair average density.

The samples of the cannon from the Pittsburg foundry present a still darker gray, with little or none of the mottled aspect, and appears highly carbonaceous, the specific gravity of the metal being correspondingly low.

In general terms the appearance of the metal from the different foundries may be summed up in two divisions, thus: Columbia and Bellona foundry guns—mottled iron; West Point and Pittsburg guns—gray iron. The locality from which the metal was drawn has no doubt influenced the result, modified also by the different modes of treatment at the several foundries.

In seeking for the character of fracture most desirable for gun metal, we would look for it between the lower mottle of the Columbia and the higher gray of the West Point foundry, passing over the extreme values of the Bellona and Pittsburg iron. This fracture may, therefore, best be defined as follows: A soft uniform mottle, passing into a light or bright gray, the spots of the mottle being so intimately blended and so nearly of the same hue as to give the fracture a light or bright gray aspect.

The cannon furnished by the South Boston foundry have all been cast since the revised regulations of 1840, and are not, therefore, included in the foregoing. The few trials that I have made of guns from this foundry have afforded the most favorable results, and the quality of the metal is unsurpassed.

It seems, therefore, unnecessary to submit these guns to any re-examination beyond that required by the reception proof. The same remark would also apply to the cannon cast at the other foundries since the establishment of the revised regulations—as all seem now to furnish a greatly improved and superior quality of metal.

In connection with this duty a record has been kept of every trial made since the commencement of the experiments. The accompanying table (Table III), extracted from the record book, will show the manner in which every fact, with its accompanying result, has been registered.

The facts and details of each separate trial, as thus recorded, will comprise a volume of some 200 pages.

It is intended to deposit this record in the Ordnance Office, where, as a book of reference, it will furnish any desired information relative to the character, history, location, and quality of every cannon in service. Aided by the samples which have been preserved for this purpose, and with the record of the facts of each case before them, the department will have the means of determining the correctness of my own conclusions, and of deciding upon the final disposition to be made of the several cannon thus examined.

The samples have been arranged in cabinet form, in the order of their caliber and dates, under the heads of the respective foundries at which they were cast; and thus spread out will afford a specimen of the metal of every gun in service. The distinctive character of fracture peculiar to each foundry, as before noted, is readily observed; and even where a change of date or contract takes place at the same foundry, or where a different kind of iron has been used, or a new system introduced, a corresponding change is evident in the different appearance presented by the fracture of the metal.

It would be well if the samples thus arranged were deposited in the model office at the Washington Arsenal, with a copy also of the record book, where, for the sake of reference, they might at some future period be found useful.

An inspection of table No. 3 will show, besides the mere form and manner of keeping the record, the relation of the strength and density of the metal in the same gun, the difference of quality of guns from the same foundry at different dates, and the wide range of the values of strength and density belonging to the various qualities of cast-iron gun metal.

It will be seen also that a depreciation has taken place in the character of the guns from each foundry among the late dates prior to 1840, and the trial of some of the guns cast since that period under the revised system show (as given in the latter part of the same table) the great improvement that has thereby been introduced.

In submitting the present annual report, which closes the late experiment for the re-examination of the heavy ordnance of the United States, it has been thought proper to embody all such facts hitherto reported as serve to prove the utility and value of this mode of testing the quality of cannon. A recapitulation of some of the most important of them has been prepared for this purpose and is hereto annexed.

RECAPITULATION.

1. Facts indicating the value of this method for testing the quality of the cannon lately re-examined, with positive proof, confirming the correctness of the results.

(These facts having been stated in Lieutenant Walbach's report of operations for the year ending 20th June, 1846, it is deemed unnecessary to repeat them. They were published with the report for that year from the Ordnance Office to the Secretary of War, and may be found in document No. 4, House of Representatives, 29th Congress, 2d session, pp. 180 to 184 inclusive.)

2. Facts illustrating the importance of the revised regulations of the Ordnance Department, for the fabrication of cannon and the great improvement manifested in the quality of the guns cast under the new system.

In my previous report it was stated that since the Ordnance Department had established the present regulations for the government of foundries, and had required the personal attendance of its officers during the fabrication of the cannon contracted for, a marked uniformity was found to prevail in the character of the guns furnished, not only from one foundry, but also among those from different foundries, and throughout the entire period since 1841; while on the contrary, under the former system of casting, the greatest discrepancies are shown to have existed in the quality of the guns, of the same foundry and even of the same date of fabrication.

(Lieutenant Walbach's subsequent experiments have further confirmed this statement—many facts in support and illustration of it are given in his report. They are, however, substantially the same as were contained in his report for 1846, and are not included here, but may be found in document No. 4, before referred to, page 180, table 2 and remarks, and the tabular statements and observations thereon at pages 185 and 187.)

From the experiments recently made, for testing the quality of the cannon in service, and from the facts developed in the course thereof, the following general summary of results is derived.

SUMMARY OF RESULTS, GENERAL REMARKS, AND CONCLUSIONS.

1st.—Samples for trial.

In the first stage of the experiments, samples for trial were taken from the trunnion of the gun. The results therefrom could not be depended on, as the rapid cooling and chilling of this comparatively small portion of the metal, together with the frequent occurrence of sand or scoria, which during the operation of casting becomes inclosed therein, very materially affected the strength and density of the metal. The same objections, in part, were found with specimens taken from the knob of the cascable. The sample most accessible in any position of the gun, and most to be relied on for accurate results, was that taken from the muzzle, because, the metal cooling there under the pressure of the sinking head, and in a larger and more proportionate mass, would approximate more nearly to the body of the gun; and, further, that in this part it would be contiguous to the sample plate, taken by order of the department from the cannon recently cast, and deposited as a specimen of the gun in the model office at Washington.

Repeated experiments have proved that the removal of this sample from the face of the muzzle occasions no injury to the gun.

2d.—Manner of refilling the cavity thus left.

To avoid disfiguring the surface of the gun, the perforations left by abstracting the sample are compactly filled with a moistened composition of sal ammonia and fine iron turnings. Rapid chemical action immediately ensues upon adding water to this mixture; decomposition of the sal ammonia and water takes place, and the resulting compound of the chloride and oxide of iron forms a cohesive mass, which cements itself firmly to the sides of the cavity. This composition indurates in the course of a few hours, and in that state sustains both the effects of weather and the heaviest shocks of firing unimpaired.

3d.—*Specific gravity of gun metal.*

The specific gravity of gun metal has some relation to its tenacity and hardness. Its value varies in different cannon between the limits of 6.9 and 7.4. From 7.18 to 7.25, or even within the wider range of 7.16 to 7.3, is considered a proper value for a good gun when accompanied with other necessary conditions; when it falls below the former limit (7.16), the metal is too soft and is generally deficient in tenacity, and when it exceeds the higher limit it becomes too hard and brittle.

This remark, of course, applies to such guns as have been cast under the former system, for it is possible with proper treatment, during the fusion and subsequent cooling of the metal, to attain even a higher degree of density without impairing its tenacity. The value, however, of the specific gravity is dependent on certain conditions attending the casting, that, by itself it cannot be regarded as a sure index of the quality of the iron; although in connection with other tests it may be highly useful.

4th.—*Tenacity of gun metal.*

The tensile strength appears to be, in most instances, the surest test of the quality of the metal. When a gun exhibits this property in connection with a corresponding density, and the character of fracture that seems in general attendant thereon, the inference is strongly in favor of the strength and durability of the gun.

5th.—*Character of fracture.*

To an experienced eye, one of the best indications of the quality of the metal is afforded by its character of fracture, and, in the absence of other means, may be of much use. The peculiarity of the *color of structure*, and the form and size of the crystals, all of which seem to vary correspondingly with the other properties, serve to point out the quality of the iron. An examination of the turned surface of a sample, when the fracture cannot be had, is also useful, as it affords *prima facie* evidence of the structure of the iron, it having been observed that when the surface is pitted with large and stellated or plumose cavities (apparently the beds of the crystals removed by the action of the turning tool), the metal is of a loose and open structure, while under the same circumstances, a close grained and compact iron has generally its turned surface smooth and even, and either without these cavities, or if with a few very small and finely marked.

For a general description of the character of fracture of different qualities of gun metal, I refer to table No. 3, of this report.

6th.—*Exceptions to the general relation of strength and density.*

Although in general a very close relation seems to exist between the tenacity and density of cast iron, yet this, it is found, does not always occur. There are cases where a medium tensile strength is observed to accompany a high degree of density, and the reverse, where a low density is found in connection with a good value of strength; in the latter case, however, the value of the tenacity is never very high. Such exceptions, however, instead of throwing objections in the way serve only

to prove the rule, by giving rise to further investigations, and I have endeavored, therefore, to account for them in the following manner:

When a case of the first kind occurs, I have noticed that the metal has generally a white aspect, either a very high mottle with the white of a silvery hue, or of a uniform, dull, and chalk-like appearance; a circumstance which may be attributed either to its having been too frequently remelted, or to its too long continuance in the furnace, or to the fact of its having been suddenly cooled from a state of fusion.

In the second case, where we find the low density belonging to a good, though not a very high degree of tenacity, it is uniformly observed that the surface of fracture presents a dark and carbonaceous appearance, yet with a very closely aggregated crystallization. I have, therefore, concluded that its excess of carbon rendered its density necessarily low, while, by reason of its close structure and the increased number of its fibers or crystals, its tensile strength has been greatly augmented. For the cause of this peculiarity, we may look to the quantity of its carbon, as due either to the nature of the fuel, or to a deficiency of oxygen in the blast during the course of its treatment in the furnace.

Where instances like either of the foregoing have been found, I have uniformly classed the gun to which they belong as doubtful. For if the iron is deficient in tenacity, it is evident that the gun cannot possess the requisite strength, and when the density is low, the metal, I fear, would be too soft to resist the effects of the ball in firing. In the latter instance, I would suggest that the application of a crushing force be made to the sample. An insufficient resistance to such a force would, I think, indicate its inability to withstand the action of the ball, although the metal might otherwise possess a good degree of tenacity.

7th.—Resistance to a crushing force.

In cases like the foregoing, when the usual relation does not exist between the density and tensile strength, I have thought that the power of the metal to resist a crushing force might be advantageously tested. I have for this purpose made such an arrangement to the breaking machine that the specimen (which is to be half of the sample left after taking the value of its tensile strength) shall be properly retained in its position, while the crushing force is applied in the direction of the axis. The ratio of this force to the tenacity and density of the metal, and then again its relation to the durability of the gun, might afford additional and useful data. The few samples that I have as yet tried in this manner are sufficient to show that this additional arrangement to the machine, answers fully the purpose for which it was intended.

8th.—Proof to extremity by gunpowder.

Under the 4th head in the programme of experiments it was proposed to submit some of the guns to extreme proof under gunpowder and hydrostatic pressure.

The results of the proof by gunpowder, as far as made, have satisfactorily verified those afforded by the other tests.

9th.—Proof by hydrostatic pressure.

This test has been satisfactorily employed in cases only of extreme proof.

Under a moderate degree of pressure, say 3,000 to 4,000 pounds per

square inch, this test might be useful in detecting flaws or cavities in the metal. It would not, however, answer with guns cast before the revised regulations, as the hardened crust of chilled iron on their exterior surfaces, arising from the coldness of the mold, would prevent the penetration of the water, and thus afford no indication of the existence of imperfections in the body of the metal. I have seen a case where the force of the water collected under this crust, through a fissure in the mass of the metal beneath, has raised it in the form of a spherical segment, of an inch in diameter above the surface of the gun, and not until broken through by an increased pressure was there a leak of any kind to indicate the flaw. With the guns of recent fabrication, however, which, besides being cast with more care, have their exterior surfaces completely turned off under the lathe, this objection would not exist. To such, a moderate pressure might, if thought necessary, be applied, and the soundness of the metal ascertained, although from my own experiments I would hesitate to reject a gun where the leaks were only found in front of the trunnions.

One of the most interesting results I derived from the extreme proof by this test was to measure the value of the cohesive force of the metal by the given values of the pressure per square inch on the fluid, the thickness of the metal, and the radius of the cylinder or bore.

In order to do this I applied the formula found in Barlow (strength of materials), which gives in terms of the above values the expression for the greatest resistance to which a cylinder can be safely subjected under such a force, and by equating it with the value of the strain due to the given pressure and radius, the resulting value of the cohesive strength was found, in the case of two separate guns, to agree very strikingly with that of the absolute strength of the same metal, as obtained from direct experiments with the breaking machine.

Another result, equally interesting, was found in the confirmation which this test afforded of the correctness of a theory, which is given in another report, upon the mode of fracture that takes place in the bursting of cannon. Defining the law which governs the first line of rupture, the form of the lines of the resulting fractures, and the general direction in which the fragments are thrown by the bursting of the gun.

The form of the present report does not permit me to enter further into the details of this subject.

In the full and final report, which I have been directed to prepare of all the operations connected with my duties from the commencement to the close of the experiments, I shall give the details of each separate trial, with a full statement also of several results, which, although interesting, cannot be here enumerated.

The present annual report embraces, however, a general view of the most important results derived from the late re-examination of the cannon at the several forts, arsenals, and depots throughout the country, and, with its conclusions, is herewith respectfully submitted for consideration.

[Extract from Annual Report of the Adjutant General for 1847. Ex. Doc., 1st session, 30th Congress, Doc. 8, p. 79.]

All the forts on the seacoast and gulf, and, with few exceptions, the posts on the western frontiers, have been evacuated—the active service in the field since the war with Mexico seeming to require, on the emergency, the withdrawal of all the regular troops from their fixed stations. The fortifications have cost more than eighteen millions of

dollars. Their value and importance in the great plan of national defense require that they be *always occupied with experienced artillerymen*. In the absence of regular troops, it is well known that these costly and necessary works and their armaments sustain great injury, and are liable to premature dilapidation. But they should always be kept in the best state of preservation for use, and always be ready for the defense and protection of the great national interests for which they were erected, however sudden and unexpected the emergency. It is believed that there should be no departure now from the policy wisely adopted in the earlier years of the Republic, and since steadily pursued by the government. Due regard, therefore, to the general and permanent interest of the public service in this respect would seem to require that the great forts and castles should always be garrisoned with troops; and it is respectfully recommended for consideration, whether measures should not be taken at an early day for the return of some of the artillery, now employed as infantry, to the performance of the appropriate duties of their proper arm in the principal fortifications on the seaboard. The eight additional companies of artillery authorized by the act of the last session of Congress was made with some view to these abiding wants of the public service.

It may not be irrelevant to state in this place that while probably not more than ten companies of the four regular artillery regiments are serving with their appropriate arm—the other thirty-eight companies being armed and equipped as infantry—there are two batteries with the main army in Mexico served by *ordnance men* (with several officers), and one by a company of the regiment of *Maryland and District of Columbia Volunteers*.

The men of the ordnance detachment were enlisted as artisans and laborers, and receive a higher rate of pay than is allowed by law to soldiers of the light artillery.

At the last session of Congress an increase of the ordnance corps was authorized, because the number of officers was deemed inadequate to the wants of that branch of service. It would seem, therefore, peculiarly proper to confine officers of ordnance to the defined objects of that department. The service of officers of the ordnance is essential with an army in campaign, but their true position, like officers of engineers, is *on the staff* of the commanding general, and their appropriate, if not legitimate duties are with the supplies and depots of their department. Economy, as well as military propriety, requires that all the harnessed batteries be transferred to the *artillery*, and it is respectfully recommended that the transfer be directed accordingly. No corps in service has been more distinguished in the present war than the artillery, and they are justly entitled to be equipped with the arm which they have proved themselves capable of using so efficiently against the enemy.

[Letters to W. D., vol. 9, p. 211.]

ORDNANCE OFFICE,
Washington, December 4, 1847.

SIR: In answer to the call by the Secretary of the Treasury for "the quantity and value of the exports to Mexico since the commencement of the war, in the nature of supplies for the Army, and also the amount of specie sent there during the same period under the direction of the bureaux of your department," I have the honor to state that the sup-

plies furnished for that service by the Ordnance Department, in compliance with orders and requisitions on this bureau, are so numerous that the quantities of each description could not be given without forming very extensive lists, and have therefore been thrown together as follows:

Artillery of every description with its carriages, beds, harness, and implements of all kinds, to the value of	\$378,501
Small-arms of every description, with their appendages and accouterments	2,294,684
Gunpowder, ammunition, and projectiles of all kinds	721,368

3,394,553

Among the articles, however, above named, a portion of the artillery, with powder, shells, and other ammunition, to the value of \$180,000 furnished for the siege of Vera Cruz, and which had become no longer necessary in consequence of the early surrender of that place, have been returned to the United States. As relates to the second part of the call, I have to state, no specie has been sent to Mexico by direction of this bureau, but it has made requisitions for funds to be remitted by the Treasury Department to its officers and agents serving in that country, to the amount of \$67,754.42, which it is presumed was sent in specie.

I have the honor to be, &c.,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Hon. W. L. MARCY,
Secretary of War.

[Letters to W. D., vol. 9, p. 213.]

ORDNANCE OFFICE,
Washington, December 13, 1847.

SIR: The enlisted men of the Ordnance Department are deprived by a rigid literal construction of the pension and bounty laws of the benefits conferred by them on all other enlisted men of the Army. That this construction of these laws (although in accordance with their *letter*) is contrary to their *spirit* and *intention*, and partial in its effects, to my mind is clear and plain. The enlisted men of ordnance are subject to the Rules and Articles of War, are drilled, disciplined and armed like other soldiers, are enlisted in like form, and render military service under the same laws and obligations. Yet, they are excluded from the benefits of the pension and bounty laws, provided for every other part of the Army, solely because they are called by other names than those used in these laws. The terms "non-commissioned officers, musicians, and privates," intended, I have not a doubt, to comprehend all enlisted men, are so construed as to exclude the soldiers of the Ordnance Department, who are called "armorers, blacksmiths, artificers, and laborers." These men are as liable to incur injuries in the line of their duty, both in times of peace and war, as any other soldiers of the Army, and the services they are required to perform are fully as arduous and dangerous. Two companies of them are now in Mexico; one serving with the siege-train, the other with the mountain howitzer and rocket battery, besides detachments at the ordnance depots established in that country. They are represented in all the reports which have been received concerning them to have rendered gallant and efficient service. I inclose copies of letters on this subject from Captain Huger and Lieu-

tenant Hagner, to which your attention is respectfully invited; also a list of killed and wounded, and of deaths from diseases incident to the climate, amongst the ordnance men in Mexico, so far as the same have been reported.

I take the liberty of submitting a draft of an act, or joint resolution, which in my opinion will meet the case, and solicit for it your favorable consideration and recommendation to the justice of Congress.

Respectfully, &c.,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Hon. WM. L. MARCY,
Secretary of War.

JOINT RESOLUTION concerning enlisted men of the United States Army.

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That the words non-commissioned officers, musicians, and privates or private soldiers, wherever they occur in any acts of Congress, shall be so construed as to include all enlisted men of the Army, subject to the Rules and Articles of War.

[23 $\frac{1}{2}$, W. D., 1847.]

ORDNANCE OFFICE,
Washington, December 17, 1847.

SIR: In reference to the communication which I had the honor to address to you on the 18th October last, it is found that the allowance of 18 cents per day to enlisted men of the Ordnance Department serving as clerks was directed by the following regulation of the Secretary of War in 1831:

When the business of an arsenal is such as to make the services of a clerk necessary, let a soldier be assigned, with his own consent, upon an allowance as though he were on extra labor.

J. H. EATON.

JUNE 15, 1831.

This regulation appears to have been the foundation of the practice of paying enlisted ordnance men employed as clerks and has been continued till lately without objection from the accounting officers of the Treasury Department. The necessity for it exists at this time even more strongly than when it was first promulgated, and I respectfully ask the Secretary to reaffirm it.

With great respect, I am, sir, your obedient servant,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Hon. W. L. MARCY,
Secretary of War.

[Inclosure.]

TREASURY DEPARTMENT,
SECOND COMPTROLLER'S OFFICE,
January 21, 1848.

The Second Comptroller having examined the papers from the Ordnance Office relative to the "allowance of eighteen cents per day to

enlisted men of the Ordnance Department serving as clerks, respectfully reports to the Secretary of War that after the passage of the law of 1842 prohibiting allowances for extra services, the claim for fifteen cents per day for extra labor by "*men belonging to the Ordnance Department*" was disallowed, for reasons stated in the decision of the Comptroller, of which a copy is annexed.

This decision applies only to the class of persons described in paragraph 243 of the Army Regulations, soldiers in the infantry, &c., of the Army who perform constant labor for the Ordnance Department, being still considered as entitled to the allowance under the act of March 2, 1819. The Comptroller respectfully suggests that so long as the above-mentioned paragraph 243 remains as a regulation for the observance of the accounting officers, the allowance would be illegal.

The papers referred to me from the War Department are herewith returned.

ALBION K. PARRIS,
Comptroller.

The act of August 23, 1842, chap. 183, sec. 2, prohibits all allowances for extra services unless the same shall be authorized by *law*.

The act of March 2, 1819, is the only *law* that authorizes the allowance of fifteen cents per day for extra labor *of any kind* in the Army, and inasmuch as that law is considered, by regulation par. 243, as not applicable to men belonging to the Ordnance Department, any payment to men in that branch of the public service for extra labor would be in violation of the act of 1842, first mentioned.

ALBION K. PARRIS,
Comptroller.

[33 W. D., 1847.]

ORDNANCE OFFICE,
Washington, December 20, 1847.

SIR: I respectfully submit herewith a statement of ordnance and ordnance stores captured from the enemy during the present war. This statement is made up from official returns received at this office, except as regards the captures at Vera Cruz and the castle of St. Juan D'Ulva, of which no official return has been received; but the articles there captured are believed to be correctly set forth in the statement. Also, copies of reports of the operations of the siege train, and howitzer and rocket battery, received from the ordnance officers serving by order of the General-in-Chief, in the immediate command thereof.

I am, sir, very respectfully, your obedient servant,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Hon. W. L. MARCY,
Secretary of War.

Statement of ordnance and ordnance stores captured in Mexico: On the Lower Rio Grande and Monterey, at St. Juan D'Ulva and Vera Cruz, and in the valley of Mexico.

Cannon of all kinds	514
Gun carriages of all kinds, with and without guns	284
Projectiles of all sorts	77,744
Fixed ammunition, rounds	6,845
Cannon cartridges, filled (contain about 100,000 pounds powder)	15,356
Rockets, Congreve	36
Artillery implements, pieces, various	715
Artillery harness, sets	8
Small-arms, all kinds	5,070
Musket-barrels	16,000
Accouterments for small-arms, sets	3,808
Cartridges for small-arms	2,042,800
Powder, pounds	65,200
Slow match, pounds	12,600
Port-fires	1,000
Cannon primers	15,000
Saltpeter, pounds	300
Flints	1,005,000
Musket-bullets, pounds	20,000
Pig lead, pounds	38,750

Report of the operations of the siege train on the 8th day of September, 1847.

SIR: In obedience to your instructions, I moved at 3 a. m. on the 8th September, with two 24-pounder siege guns, supported by the light battalion of the 1st division, and was placed by Lieutenant-Colonel Duncan on the plain about 600 yards from the building called Molino del Rey, supposed to be a foundry which I was directed to batter. At daylight I opened a fire from these two guns upon the building with good effect, and fired about ten rounds from each gun, when our infantry having reached the front of the building, the fire was discontinued. After the infantry had captured the batteries of the enemy, and occupied the buildings, I received orders to advance on the left of the line to drive off the enemy who were in great force there. On arriving at this point, I received your personal order to move one gun to the foundry, which was immediately dispatched, in charge of Lieutenant Stone, the other piece remaining in its position in charge of Lieutenant Haguer, who fired with great precision and effect on the Mexican forces on the left, and caused them to retire; his limited supply of ammunition then being exhausted, his gun was withdrawn. As Lieutenant Stone got into position near the foundry, a large force from Chapultepec advanced on a single piece Captain Drum had there, with only a small supporting force of infantry. A few rounds from the 24-pounder caused the advancing forces to retire, and Lieutenant Stone maintained this position, and fired his gun with great coolness and precision whenever the enemy appeared, the fort of Chapultepec firing on him all the while. I now returned to camp and brought out a fresh supply of ammunition, when I received your instructions not to fire upon the fort at Chapultepec, but to withdraw the guns and remove the captured ones. I found on the ground two 6-pounders without limbers, one of which had been used against the enemy by Lieutenant Peck, Second Artillery. As soon as the 24-pounders had been withdrawn from the ground, I sent Lieutenant Haguer with their limbers, and removed the two captured 6-pounders.

By your directions, I furnished horses and drivers from the siege train to Captain Drum for the two light 6-pounder guns he recaptured from the enemy at Contreras (those taken at Buena Vista) and directed him to report to Colonel Garland. Captain Drum will make a special report of his operations, but as I was present with him part of the time, I must be allowed to say that never were pieces served with better judgment and effect. Of Lieutenant Haguer, commanding the siege train company, who by his untiring industry and exertions has kept the siege battery in most perfect order, and of Lieutenant Stone and the non-commissioned officers and men of the siege train, I cannot speak in too high terms; they performed their duty well.

Very respectfully, your obedient servant,

BENJ. HUGER.

Captain of Ordnance, Commanding Siege Train.

To Bvt. Maj. Gen. WORTH,
Commanding First Division.

Returns of casualties in Siege-Train Company of Ordnance on the 8th of September, 1847.

Killed, one private, accidentally (run over by gun); wounded, one private, slightly.

BENJ. HUGER,
Captain, Acting Chief of Ordnance.

Return of ordnance and ordnance stores captured September 8, 1847.

1 (one) 8 pounder, bronze, *old*, on field carriage; 2 (two) 6 pounders, bronze, *old*, on field carriage; *no limbers*. Brought into Tacubaya.

1 12 or 16 pounder gun, siege, bronze; carriage destroyed. The gun spiked and otherwise damaged, and left on the field as I am informed. I did not see this gun, and was not aware of its position until after the troops were withdrawn.

30,000 musket ball cartridges.

The field ammunition captured was used in firing their guns against the enemy, or destroyed.

BENJ. HUGER,
Captain, Acting Chief of Ordnance.

TACUBAYA, September 9, 1847.

CITADEL OF MEXICO, September 20, 1847.

SIR: I have the honor to report that on the morning of September 11, the General-in-Chief directed me (assisted by the much-lamented Captain Drum) to make a reconnaissance of the castle of Chapultepec, with a view to planting heavy batteries against it. We selected four positions for batteries: No. 1, on the road leading from Tacubaya to Chapultepec, to fire on the south side of the castle; No. 2, on the ridge to the south of "Molino del Rey" and opposite the southwest angle of the castle; No. 3, near the "Molino del Rey" some 300 yards to the north and east of No. 2; and the ten-inch mortar, or No. 4, at the Molino, under cover of the high wall formed by the aqueduct, and opposite the west front of the castle.

This arrangement having been approved by the engineers, was adopted by the General-in-Chief, and that evening I received orders to get everything ready and move the heavy guns during the night from Miscoaque (to which place they had been carried the day previous) and place them in the batteries to be constructed by the engineers before morning.

As the troops designated to act as working parties were at a distance, and did not arrive until near 4 o'clock a. m. on the 12th, a very short time was allowed us to complete the batteries before daylight should discover us to the enemy; but by the indefatigable exertions of the engineers, officers, and men, with the assistance of the working parties furnished by General Quitman's division, the work advanced rapidly.

Two 16-pounders and one 8-inch howitzer (captured guns) were placed in battery No. 1, and served by Captain Drum, Light Company G Fourth Regiment Artillery, assisted by Lieutenants Benjamin and Porter. One 24-pounder and one 8-inch howitzer (U. S.) were placed in No. 2, and served by a detachment of the ordnance company under Lieutenant Hagner. One 24-pounder, intended for this battery, was unfortunately overturned on the night-march from Miscoaque, and there was no time to receive this day's operations. The position of these two batteries were well masked by bushes; this, and the timely diversion made by General Twiggs's division (who opened his fire from Captain Steptoe's battery on the enemy's works, on the south side of the city, at daylight on the 12th instant), allowed us to proceed with our work of these batteries without molestation from the enemy until after sunrise.

As soon as the works were sufficiently advanced, Captain Drum and Lieutenant Hagner commenced cannonading the castle with a well regulated and accurate fire, nearly every shot telling.

I now brought one 16-pounder gun (captured) and one 8-inch howitzer (U. S.) in charge of Capt. H. Brooks and his Company D, Second Artillery. We had to pass under a very brisk fire from the castle, and could not at this time prepare the battery for these pieces at the position chosen, on account of this very heavy fire. I conducted the guns to the north end of the "Molino," where they commanded the approach of any of the enemy's forces on that side of the castle. Parties of the enemy advanced in that direction more than once, but a shot from these pieces caused them to retire.

The steady fire of batteries Nos. 1 and 2 caused that of the castle to slacken. The 10-inch mortar in charge of Lieutenant Stone, and served by a detachment of ordnance company under him, was placed in position, and commenced throwing shells into the castle.

Taking advantage from the much diminished fire from the enemy, Captain Lee, Engineers, using the walls of the aqueduct as a parapet, had the ground arranged and platforms laid during the day, and the two pieces in charge of Captain Brooks were placed in battery and opened their fire. Lieut. S. S. Anderson, Second Artillery, and Lieutenant Russell, Fourth Infantry, relieved Captain Brooks's company in the evening, and continued to serve the piece at battery No. 3 during the rest of the attacks. The stock of the 16-pounder siege carriage broke, leaving Lieutenant Anderson only the 8-inch howitzer at his battery. The firing was continued steadily until dusk. The firing from the castle, after all our batteries got into full play, and by evening appeared to be completely silenced.

General Pillow's division remained at the Molino, and I withdrew the men serving at the pieces and allowed them to rest that night. The ordnance officers and men had been steadily at work getting their guns into position and serving them for twenty-four hours without any intermission.

At daylight on the 13th September the batteries were again manned; No. 1 by Captain Drum's company (which had been relieved the previous evening by Lieutenant Andrews, Third Artillery); Nos. 2, 3, 4, by the same officers and men that served them the evening of the 12th, and the fire was opened on the castle with a precision and effect which does the highest credit to these officers and men.

After cannonading had lasted from two to three hours, and grape, canister, and shells had been thrown into the wood by the field-pieces as well as the heavy guns, I received orders from the General-in-Chief, through Lieutenant Williams, aide-de-camp, to cease firing, as the troops would make a forward movement.

As there were two companies in support of batteries No. 2 and 3 (they having been originally sent as working parties), I now allowed one of them, commanded by Lieutenant Reid, New York Volunteers (with his command, composed of New York Volunteers and Marines), to join his proper division, and he gallantly pushed up the hill and joined it during the storming of the castle.

When our troops had passed the wood and were well advanced up the hill, and both cannon and musketry were playing upon them from the breastworks, I ordered the fire to be resumed, throwing shot and shells over the heads of our own men into the works of the enemy.

After the castle was taken Captain Drum advanced some of his pieces with General Quitman's division on the Tacubaya road, was foremost where the fight was thickest, and fell, mortally wounded, after the battery at the Garrita had been forced. First Lieutenant Benjamin was also mortally wounded, and First Lieutenant Porter slightly. As Captain Drum's company served with General Quitman's division, Lieutenant Porter, the only surviving officer of it, has made a report of its operations to that general, a copy of which I inclose, together with his report of casualties.

When General Worth advanced towards the capital on the San Cosin  road, I received orders from the General-in-Chief to follow him with the siege pieces. There was some delay, owing to the horses not having arrived from the depot at Miscoaque; as soon as they came I sent forward two pieces under Lieutenant Hagner, escorted by Captain Gallagher's command of New York Volunteers and Marines, and followed with two pieces and the mortar, escorted by the Fourteenth Regiment of Infantry.

When I reported to General Worth, as directed by the General-in-Chief in person, whom I met on the San Cosin  road, all the positions of the enemy had been forced except that at the Garrita San Cosin . Lieutenant Hagner's section was advanced against that battery, but it was found impossible to bring his pieces into position on account of the nature of the ground. His guns were withdrawn, and the battery soon carried by passing infantry through the houses. By direction of General Worth I then advanced two pieces and the mortar to the Garrita, and fired a few shot, and threw five 10-inch shells from the mortar (between 9 and 10 p. m.) towards the center of the city.

On the morning of the 14th the siege pieces moved into the city with the first division, and when we were fired upon from the houses Lieutenant Hagner was detached with an 8-inch howitzer, and threw several shells into the houses from which the fire came. The two 8-inch howitzers were retained in this position near the Alameda and the others moved on to the grand plaza.

The officers and men serving these batteries did their duty with skill and courage. The shattered castle bears testimony to the accuracy of their aim.

On the much regretted Drum and Benjamin I need not dwell. Their well-known gallantry was on this occasion witnessed by many, and their loss is mourned by the whole Army.

To Lieutenant Hagner, commanding company of ordnance, Lieutenant Stone, and the non-commissioned officers and men of the company, I think especial praise is due. By indefatigable industry and constant attention to their duties they have kept the material in perfect order and ready for instant use, and in addition to our siege train proper they have got in order and readiness the siege guns captured from the enemy, which were used to such advantage on the occasion. Their labors have been incessant;

they have repaired and kept in order the field batteries and arms and ammunition for the whole Army. On the present occasion Lieutenant Hagner received his orders for placing his guns in battery after dark on the night of the 11th. They had to be moved two miles from the depot, and everything was well done and the batteries opened their fire early next morning. They served their guns during the action with great skill and coolness. I feel bound to recommend them to the especial notice of the General-in-Chief. Capt. H. Brooks on the 12th, and Lieutenants Anderson and Russell on the 12th and 13th, served battery No. 3 with great credit to themselves. To Captain Gallagher, New York Volunteers, and Lieutenant Norvell, Marines, my thanks are due for their assistance and prompt aid whenever required; and I beg leave to call the General-in-Chief's particular attention to the valuable services of Mr. William Cockburn, of Texas, agent of the Quartermaster's Department serving with the siege train, who by his great activity and energy was of material assistance in conducting the guns and train.

The 24-pounder which was upset on the road the night of the 11th was remounted on the 12th by Lieut. R. W. Johnson and his company of the Third Artillery. Capt. J. R. Irwin, acting quartermaster-general, gave every assistance and his personal superintendence. It was carried to battery No. 3 that night and did good service on the 13th.

I am, very respectfully, your obedient servant,

BENJ. HUGER,

Captain, Acting Chief of Ordnance.

To Captain H. L. SCOTT,

Acting Assistant Adjutant-General.

MEXICO, October 26, 1847.

SIR: I have the honor to make the following detailed report of the service of the howitzer and rocket battery up to 31st March last, at which time I was relieved from the command of the company. The cessation of communication with the United States has delayed the report till this time.

The company was ordered, in December, 1846, to be enlisted and rendezvous at Fort Monroe, from which post it sailed, 105 strong, on the 1st February, 1847, and landed near Vera Cruz with the "first line" under General Worth on the 9th of March.

It was found very easy to get the battery complete, with the men, into three surf-boats, and in thirty minutes after they struck the beach it was reported ready to move by hand, as we had no horses.

On the morning of the 10th the rockets were detached with one howitzer, and several rounds of each were fired at the enemy, but from the distance the effects could not be ascertained distinctly.

The rest of the battery, supported and assisted by a company of infantry, was ordered up the beach to take a position to flank a sand hill on which the enemy had been seen. I advanced accordingly and took post on a low sand hill near the beach, which drew the fire from the city and castle, but we were just out of range, though they afterwards threw some heavy shells some distance beyond us. This position was then selected as the extreme right of the line of investment, and the command was encamped there during the siege.

On the evening of the 18th I was ordered, with a section of the battery, to join the reserve of the "trench guard." On the 21st, Lieutenant Reno, with another section, joined me, and we moved into the trenches on the right, and were left as part of their guard. On the evening of the 23d I was relieved from the trenches by Lieutenant Callender, who had been previously, with one piece, at the "Lime-kiln"; the sixth piece, under a sergeant, having also been detached on the 21st to join a picket guard some distance down the beach.

On the 24th, Lieutenant Reno was relieved by Lieutenant Callender taking charge of his section, and about 10 p. m., from a point considerably in advance of the "Lime-kiln," then unoccupied, we threw about 40 rockets, of the old kind, into the city. Hardly had the first one been thrown when the fort of St. Iago opened upon us with round shot, throwing them very close, and the castle with a light ball and shells. We, however, fired all the rockets and returned to camp without loss.

About 12 p. m. on the 25th, from the same place, I threw ten of Hale's rockets into the city, but drew no fire from the forts. From St. Iago, however, there was a discharge of muskets into the surrounding ground, as if a storming party was expected. Before morning the city sounded a "parley" and a flag was sent into our camp, which terminated in the surrender of the enemy. The trench guard was kept up, by regular reliefs, till the occupation of the city by our troops.

On the morning of the 19th the enemy discovered the position of the trench guard and reserve, and a very heavy fire of all kinds of projectiles was kept up, chiefly by day, till our batteries opened on the 22d, when the fire was concentrated on them.

Though a storm of shot was beating the ground in all directions round us, and the fire of our own mortars, from the 22d to 23d particularly, caused great annoyance and actual suffering from their proximity, the men behaved admirably, bringing in shells for the mortars and rendering all the assistance in their power.

The duties of the company exceeded, I believe, in severity those of any other present, but they were cheerfully and promptly performed by both officers and men, and I beg leave to recommend them to your favorable consideration.

I have the honor to be, sir, with great respect, your obedient servant,

G. H. TALCOTT,

Major Voltigeurs.

Lieut. Col. G. TALCOTT,
Ordnance Office, Washington.

[Letters to Ord. Officers, vol. 9, p. 398.]

ORDNANCE OFFICE,
Washington, January 8, 1848.

SIR: The mayor of the city of Augusta has applied to this office for a plat of ground on which to build a powder magazine for the storage of merchant powder, upon which application it has been suggested here that a part of the United States magazine might be appropriated to the purpose desired. The Secretary of War has approved the measure—subject to such regulations as may be made to prevent any expense to the government and keep the building under your control. You will therefore confer with the mayor, and arrange the terms on which the occupancy of one half the building may be conceded to him, and send them to this office for approval before the measure is carried into effect.

I am, sir, &c.,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

J. M. GALT, Esq.,
Augusta Arsenal.

[Letters to W. D., vol. 9, p. 221.]

ORDNANCE OFFICE,
Washington, January 12, 1848.

SIR: The wants of the service, so far as the Ordnance Department is concerned, have made it my duty to address you before, on the subject of an increase of the number of its officers. The *sixteenth* section of the act of 3d March, 1847, provided, in part, for these wants; but not according to the organization then proposed. The necessity, at that time, for an organization of the Ordnance Corps, like that of the Corps of Engineers, is, if possible, more urgent now in consequence of the number of officers sick and disabled.

The reasons for the proposed increase of the number of officers, which accompanied my letter to you on this subject of the 10th July, 1846, are in as great, indeed greater force, now than then; and I respectfully repeat them, with the remark that the addition now asked for is of one lieutenant-colonel and six 2nd lieutenants only, the act before cited having provided the other officers.

I have respectfully to request your approval of this addition to the Ordnance Corps, with such a representation of the matter to Congress as to you may seem proper to effect it.

Very respectfully, &c.,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Hon. W. L. MARCY,
Secretary of War.

ORDNANCE OFFICE,
Washington, January 12, 1848.

SIR: I have the honor to state that on the 27th ultimo the ordnance officer at New York delivered to the French consul at that place duplicate specimens of fire-arms, now in use by the troops of the United States, in accordance with a request made by Mr. Pageot, a long time since, and this delivery has been thus long deferred that certain arms of the new models might be included amongst those previously on hand. The following is a list of the several arms, viz: 2 percussion muskets, for infantry; 2 percussion musketoons, for cavalry; 2 percussion musketoons, with swords, for artillery and sappers; 2 percussion rifles (Harper's Ferry); 2 percussion carbines (Harper's Ferry), cavalry; 2 percussion pistols, cavalry, with specimens of their appropriate ammunition and cap pouches. Mr. Pageot states that these arms are desired by the minister of war, to be placed in the "musée d'artillerie" at Paris, and kindly offers a return of the courtesy in any manner that would be most acceptable to the department. Allow me, sir, to suggest that a knowledge of the French arms of late models would be a valuable acquisition, and particularly of the following, viz: Infantry musket, percussion, model of 1842; dragoon musket, percussion, model of 1842; double barreled percussion (voltigeur corps), gendarmerie musketoon, model 1842; gendarmerie pistol, model, 1840; infantry musket, altered from flint to percussion, 1841; percussion rifle (carabine), 1842; rampart rifle (fusil de rampart), 1842.

Infantry accouterments, viz: Cartridge box, bayonet scabbard, belts for the above, pouch for percussion caps.

Rifle accouterments, viz: Cartridge box and belt, sword scabbard and belt.

Artillery accouterments, viz: Gun-sling, cartridge box and belt, saber belt for foot artillery, saber belt for horse artillery.

The above-named arms and accouterments may be taken charge of by the secretary of the American legation at Paris, or our consul, and be shipped to New York, where all expenses may be paid by Captain Thornton, to whom they should be addressed.

I am sir, &c.,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Hon. WM. L. MARCY,
Secretary of War.

Notes for the Secretary of War.

Since the beginning of the Mexican war, appropriations have been, on several occasions, asked for to meet deficiencies, or to make up enough to cover expenditures exceeding the estimates. The amount estimated on this account, for the Ordnance Department, at the present session of Congress, is \$300,000. These deficiencies have not been caused by the failure of Congress to appropriate, nor by reductions in the departments' estimates but they have resulted from the necessity of providing supplies, not anticipated to be called for, or in greater quantities than were thought to be necessary, when the estimates were made. For instance, the heavy expenditures for the California expedition were not

embraced in the estimates for the service of the Ordnance Department. Extra purchases of cannon and carriages were made to a certain extent, because some of those articles required for the supplies of that expedition were found to be in possession of manufacturers, by whom they had been made to the order of the Mexican Government before the commencement of hostilities, and were thus available for the service of the expedition without abstracting them from the armament of the fortifications.

The immense outlay for the siege of Vera Cruz was not anticipated by any estimate; upwards of 80,000 heavy shells, 560,000 pounds of gunpowder, 30 heavy mortars, and some siege guns, in addition to those on hand, with their carriages, implements, platforms, &c., were provided. About 20 mortars, more than 60,000 shells, about 400,000 pounds of gunpowder, and 21 siege guns and howitzers remain on hand or were returned, and are available for future use. Still the cost of them was paid, absorbing all the funds under the control of the department and causing a heavy deficiency the following year, which had to be provided for. So, likewise, in the present year, the estimates having been based on the employment of a specific number of troops and of the usual proportion of the different kinds, are found insufficient, because it has been found necessary to provide an armament for a greater number and to change the proportions of each kind. The number of mounted men has been greater than was anticipated by estimating from the customary ratio, and the supplies for this description of force were more costly, and, unlike those for foot troops, were not to be found in such large quantities in our arsenals.

To provide them, therefore, called for a greater money outlay than was anticipated in the estimates. The present deficiency in the Ordnance Department is readily accounted for by the following statement in figures:

The whole amount of extra appropriations for the last three fiscal years growing out of the Mexican war is \$1,509,652.

The money expenditures to provide ordnance and ordnance stores, required for the prosecution of the war, not including such as were on hand at the arsenals, were—

For the siege of Vera Cruz, about	\$523,000
For the California expedition, about	160,000
For the Santa Fé expedition, about	87,000
For the ten new regiments, about	72,650
For field artillery, carriages, harness, forges, equipments, &c., about	213,730
For field artillery ammunition, about	80,650
For accouterments and small-arms ammunition for old troops.....	193,000
For arms, accouterments, and ammunition for volunteers.....	490,000
	<hr/>
	\$1,820,030

The difference is \$310,378, and it will be seen from the estimate that \$300,000 is asked for to meet deficiencies. But it should be remembered that there is a large portion of this expenditure, which, though it disappears as money, is not lost, but remains still a portion of the national treasure in another shape. It is only money converted into its equivalent in munitions of war. Some of these have already been returned to the country, as has been before mentioned in speaking of the supplies for the siege of Vera Cruz, and of the rest many will come back of as much value, deducting wear and tear, as when purchased. These, when repaired, will constitute a valuable supply for future use, should the country ever require them; but which must be possessed by it, whether required for use or not. The estimated value of such of these supplies as

have been returned is over three hundred thousand dollars; and the increased stock on hand at our arsenals, when the war shall have been ended, the stores brought back, and all the fragments gathered up, must be ascertained, before the absolute expenditure can be known.

Respectfully submitted.

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

ORDNANCE OFFICE, *February 14, 1848,*

[49 A., 1848.]

ADJUTANT-GENERAL'S OFFICE,
Washington, March 16, 1848.

SIR: I respectfully inclose herewith a copy of a letter from the Colonel of Ordnance to Lieutenant Dyer, of that corps, dated October 8, 1847 (but received at this office December 8, 1847), which was some time since brought to my notice. It is presumed, of course, since authority is therein given for the contingent appointment of "an acting military storekeeper, at a salary of \$800 per annum," that the order was given with the sanction of the War Department. The instructions to Lieutenant Dyer leave it optional with the commanding officer to dispense with his services, or not, but as he was the only officer of the ordnance with the Army in New Mexico, it would seem very proper, if not indeed necessary, that he should have remained in that quarter where so large a military force is employed, and that chiefly consisting of irregular troops. But the purpose of this communication is also to request attention to paragraph 860, General Regulations for the Army, and respectfully to inquire if its provisions are intended to be observed, as it has in this and several other instances been overlooked, perhaps unintentionally?

The regulation referred to is cited below:

860. Officers of every branch of the service, assigned to *duty with an army in the field, shall only be relieved or transferred* through the orders of the general, or other officer, commanding the troops; and, when it may be necessary to withdraw any officer of the staff from duty there, the requisite instructions will be communicated through the Adjutant-General's Office.

I am, sir, with great respect, your obedient servant,

R. JONES,
Adjutant-General.

Hon. W. L. MARCY,
Secretary of War.

[Miscellaneous Letters, vol. 39, p. 68.]

ORDNANCE OFFICE,
Washington, March 20, 1848.

SIR: Your letter of 16th instant, to the Secretary of War, a copy of which has just been furnished me, seems to intimate that a breach of the regulations (paragraph 860) has been committed by this office. The facts are that Lieutenant Dyer and his wife both applied for his return to Missouri, in consequence of severe family afflictions, and the Secretary of War verbally authorized his return, provided the officer in command at Santa Fé should sanction the measure, and he was so informed. The

official letter, of which you have a copy, was written as stated. As the "withdrawal of an officer" was not intended, unless by the sanction of his commander, it was not deemed necessary to have recourse to your office. That you may see the precise ground taken in the matter *here*, I inclose you a copy of the letter to Mrs. Dyer. It was my intention to authorize the return of Lieutenant Dyer only in case he could be spared by his commanding officer, and the Secretary of War authorized the appointment of a storekeeper in case it should be necessary in the opinion of that officer to have one in addition to the ordnance sergeant. I profess to be governed by Army Regulations, but in the hurry of business it may well happen that they escape my recollection as regards minute details. As regards other violations to which you allude, I apprehend that a careful examination of the facts may place the several matters in such a light as to exonerate me from any very severe censure.

I am, sir, &c.,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Genl. R. JONES,
Adjutant-General.

[Letters to W. D., vol. 9, p. 235.]

ORDNANCE OFFICE,
Washington, March 18, 1848.

SIR: In reply to the several questions concerning Bouton's invention,* contained in the letter of the Hon. John Crowell, referred to this office, I have to report:

As to the first question, viz: "What is the utility of Mr. Bouton's invention, and are the caps manufactured by his machinery better than the caps formerly used?"

The utility of the machine consists chiefly in its ability to perform a great deal of work, and to perform it far better than by any previously known means. In our service caps were never made before the invention of this machine by Mr. Bouton, and one other machine which, being found less perfect, has been laid aside since the introduction of Mr. Bouton's. We know of no separate or particular machine in Europe for manufacturing caps. The French process, which is probably the best in use there, consists of four operations on three machines, with a workman for each, to form the capsule, whilst Mr. Bouton's machine makes it at one operation, and with only one workman for two machines, which, with a suitable power, will make 50 or 60 per minute each; or at 50 per minute, 60,000 in ten hours; or, in cases of emergency, 144,000 in the whole day of twenty-four hours. This number (60,000) is made by one man at two machines; whereas in the French or hand process seven persons would be employed to produce 50,000 in a day; the machine which cuts the stars making that number; whilst it would require three machines of each of the other two kinds, for forming the cap and trimming it, to finish the same number in the same time. Thus seven machines or screw presses and seven workmen would be required in the French process to make 50,000 caps in the same time that two of Mr. Bouton's machines with one workman would make 60,000. The caps

*See reports of Committees House of Representatives, No. 748, First session Thirtieth Congress, and No. 197, First session Thirty-first Congress, in relation to the invention of Bouton.

made by Bouton's machine are better than those made by the other process.

As to the second question, viz: "In what respect are they superior?"

By the peculiar construction of the machine and an adequate power to work it, the copper is so compressed and *drawn* in the machine as to render the junction of the four *joints* in the cap perfect; giving greater elasticity to the segments, and admitting of the slits or joints extending very nearly to the bottom of the cap, causing the caps to adhere more closely to the cone of the gun, and to adapt themselves to cones that vary in their diameter; and, at the same time, removing entirely the dangerous defect, that many caps possess, of breaking and throwing off fragments by their own explosion and the escape of force from the charge of the gun through the vent. Caps made by the hand process are not, I believe, *drawn* like ours, and consequently their joints are less perfect, and not, like ours, altogether impervious to water. Without those joints the cap could not be formed, and without having them of a proper length it would burst and fly when fired. The joints, therefore, being indispensable, it is highly important that they be made *water-tight* to preserve the fulminate from injury by moisture. The varnish over the priming would be but a poor protection unless the joints were closed against the admission of water or the dampness of the atmosphere. With a good varnish over the priming, we have fired gunpowder with caps after their immersion for ten or twelve days in water.

As to the third question, viz: "Is the cost of the article diminished, and, if so, how much?"

We have never made caps by any other process than that which has been described. At the first introduction of percussion arms into our service, some few years ago, some millions of caps were imported; but the importance of being independent of foreign manufacturers for an article so indispensable in war, after the use of percussion arms should become general in our service, at once called attention to the subject of making them at our arsenals. Mr. Bouton, at Watervliet Arsenal, by request of its commanding officer, applied himself to the invention of a *machine* for the purpose, which would save labor and expense, and, like most other good machines, produce better articles than can be made without machinery. His invention is the result of several years' study and labor, and he has constructed two machines that are in operation at Watervliet Arsenal, one at Washington Arsenal, and one at the navy-yard in this city; he has also two more nearly completed at Watervliet Arsenal.

The relative cost of manufacturing the capsules may be readily estimated by what has been said in answer to the first question. The materials being the same in both cases, one man, at \$1.20 per day, would make 60,000 caps at a cost of *two cents* per thousand, while, by the hand or French process, seven men would be required, at say 75 cents per day, amounting to \$5.25, to fabricate 50,000, or at the rate of 10½ cents per thousand; so that in the one case the labor for making 60,000 caps would cost \$1.20, and the other \$6.20. In France and other countries where labor is so much less valuable than in the United States this saving is of less consequence. The foregoing comparative cost is based upon wages *here*, and for the purpose of showing what would have been the cost of making caps had we followed the French process. The allowance of \$1.20 per day is made to the workman for attending two machines, because he should be enough of a *mechanic* to keep his machines in a good state of repair; common laborers might work the hand presses. But this saving is not the only nor the chief advantage of employing

this improved method of manufacturing. The superior quality of the caps, the possession of means superior to any other for making them, and the very great facility with which they can be manufactured are what render the invention valuable beyond the mere saving in the first cost.

As to the fourth question, viz : "In the quantity manufactured and used in the last two years in the public service, what has been saved to the government by the use of Bouton's invention?"

Confining my answer strictly to the question, I have to state that during the last two years there have been made 16,842,250 percussion caps, of which 12,410,524 have been used. The actual saving in dollars and cents would be, on these numbers, according to the foregoing estimate of cost, \$1,431.59 on the number made, or \$1,054.98 on the number used.

As yet but few of our troops, other than cavalry and riflemen, have percussion arms. Flint-locks are still in the hands of most of the infantry, and consequently the demand for caps has been limited. Our means of making caps, although sufficient to supply all demands for the percussion arms in service during the last two years, which could not have been done nearly as well without the *machine*, are not yet completed. When we shall have four good machines in operation, with other equal facilities for charging, &c., we may turn out from 30 to 40 millions of caps a year, and thus have the means of meeting any increased demands.

It would hardly seem fair to estimate the value of Mr. Bouton's invention by the saving in expense for one or five years. It is an invention which is to be usefully applied to our military service for the future, and is calculated to meet the heaviest requisitions with unequalled promptitude. Its products, besides their unlimited quantity, are to be of a quality which by any other mode of fabrication is not equalled. And it is an invention which gives us the means of a rapid and economical supply of an important article in war; means that, it is believed, no other nation possess. The cap *machine* is not the only improvement by Mr. Bouton connected with the manufacture of caps. The preparation of the material, the fixtures and implements to aid in the charging and varnishing, his exertions to improve the quality of the fulminate and the means of its preservation with the least danger to the lives of those engaged in working it, have all been subjects to which he has devoted much study and labor, and with good results.

Mr. Crowell's letter, with the inclosed papers, is returned herewith.

Respectfully, &c.,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Hon. W. L. MARCY,
Secretary of War.

[Miscellaneous Letters, vol. 39, p. 72.]

ORDNANCE OFFICE,
Washington, March 24, 1848.

SIR: The serious inconvenience which I have frequently experienced for the want of ordnance officers to meet, promptly and efficiently, demands for their services, induces me to bring to your notice the insufficiency of the present organization of this department.

In several communications to the War Department, on this subject, I think that the inadequacy of the present organization to the proper discharge of the duties of the department, has been satisfactorily dem-

onstrated; that the proper organization has been indicated, and that good and substantial reasons in support of it, have been adduced.

I inclose, herewith, copies of all those communications, and request your attentive examination of them; even at the risk of tediousness and repetition.

You will perceive from the last written of these letters, dated January 12, 1848, that there are but seven additional officers now required to complete the proper organization, viz: one lieutenant-colonel and six second lieutenants. I hope that this addition to the present strength of the corps may be authorized during this session of Congress.

I also earnestly recommend a modification of the second section of the act of August 23, 1842, so far as relates to military storekeepers of ordnance.

An intimate knowledge of the duties and responsibilities of these officers, convinces me that this modification is demanded by the interests of the service, and as an act of justice to them. The section referred to should be so changed as to include the storekeeper at Watertown Arsenal among those receiving twelve hundred and fifty dollars per annum, and to place all of these officers on the same footing as regards allowances of fuel and quarters with other officers of the Army. I inclose herewith, in the form of a memorandum, a sketch of an act to complete the proper organization of the Ordnance Department according to the foregoing views.

I am, respectfully, &c.,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Hon. JAMES WILSON,
Committee on Military Affairs, House of Representatives.

Memorandum for General Wilson.

Be it enacted, &c., That the President of the United States be, and he is hereby, authorized to add to the Ordnance Department, whenever he shall deem it expedient to increase the same, one lieutenant-colonel and six second lieutenants, who shall be entitled to receive the same pay and allowances as officers of those grades, respectively, now belonging to the department.

And be it further enacted, That the military storekeepers, authorized by the second section of the act entitled, "An act respecting the organization of the Army, and for other purposes," approved August 23, 1842, shall be entitled to receive the usual allowances of fuel and quarters, to be regulated by the Secretary of War; and that the storekeeper at Watertown Arsenal shall receive the same salary and give bonds to the same amount, as the paymasters and military storekeepers at the arsenals of construction.

[Letters to W. D., vol. 9, p. 242.]

ORDNANCE OFFICE,
Washington, April 5, 1848.

SIR: I have the honor to acknowledge a reference to this office of the the Senate resolution* of 28th ultimo requesting from the President of the United States, information "touching the superior merits of the repeating firearms, invented by Samuel Colt, &c.," which is accompanied by twenty letters and statements, setting forth the opinions of officers and other persons in favor of them, and recommending them for use by the mounted forces of the Army; upon which I respectfully report that I consider it unnecessary to meet all these statements with an array of

* See Sen. Report No. 100, 1st sess., 30 Cong., in regard to Colt's repeating firearms.

opposite opinions, drawn from the official records of trials made by authority of the War Department in times past. As the subject has been often and carefully discussed I shall present only the conclusions reached, after mature deliberation, believing them to be fully sustained by the facts recorded.

The advantage resulting from breach-loading, whereby the ball is "forced," or slugged, is found in giving a greater velocity and precision of direction to the ball, and is acknowledged by all; but this is obtained by the sacrifice of solidity, simplicity, and durability. The want of solidity in the parts most exposed to the action of the charge, the liability of the moveable parts to become unserviceable from wear, from rust and dirt, and the escape of gas at the points of junction, are defects inherent to this mode of loading; so that, notwithstanding the repeated trials made for centuries, and the many ingenious and well executed contrivances offered of late years, arms thus loaded have not been adopted for arming troops in any country, except partially in this; nor have they been brought into general use for other purposes. To this should be added the fact that they require a particular and special provision of ammunition, differing from what is provided in great quantities and found everywhere for small arms. Colt's arms appear also to have been peculiarly liable to the accident of simultaneous discharges from two or more chambers at once.

As regards "the propriety of providing for the more general adoption of the aforesaid arms by the United States, for the protection of the Mexican and Indian frontiers, either by procuring a full supply from the inventor or by purchase from the inventor of the right to allow the aforesaid arms to be constructed at the government armories," I have the honor to state that several hundred of Colt's carbines and rifles and some pistols have been heretofore procured and used in the Florida war, also in 1845, and one thousand pistols have recently been furnished to the troops in Mexico, and a further supply of one thousand more pistols will soon be received from the manufacturer.

Repeating arms of endless varieties have been produced, and after a brief period of trial laid aside; nothing of the kind has held its position, except the double-barreled gun, which for the *general purposes* of service appears to be a sufficient extension of the repeating principle. The *special purposes*, however, where the men can be selected for a partisan corps, and be well instructed in the use of the weapon, there can be no doubt of the advantage of repeating arms. As a bold man who expects to encounter a superior force sticks his belt full of pistols and has the courage to face several opponents, relying on his coolness and skill in the use of his weapons, so a partisan soldier, possessed of like qualities, may safely rely on his revolver to achieve most surprising results, but the weapon must be taken with all its inherent defects, and whoever supposes that placing a Colt's pistol in the hands of an ordinary soldier will make him a "Jack Hays" will be disappointed.

As the inventor has provided the machinery necessary for the fabrication of the arms, it is believed that he can furnish them on such terms as may be more economical to the United States than to undertake their manufacture at the public armories.

The resolution and accompanying papers are herewith returned.

I am sir, &c.,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

HON. WM. L. MARCY,
Secretary of War.

ORDNANCE OFFICE,
Washington, April 6, 1848.

SIR: I read some time since, with much surprise, the official annual report of the Adjutant-General of the Army to the Secretary of War,* which forms one of the documents accompanying the message of the President to Congress at the opening of the present session. Supposing that the Adjutant-General possessed information concerning the operation of the Ordnance Corps with the Army in Mexico which had not reached this office, I have delayed making any remarks upon the objectionable statements in his report until the facts bearing upon the subject have been obtained from the senior ordnance officer with the Army at the City of Mexico.

The Adjutant-General says "that, while probably not more than ten companies of the four regular artillery regiments are serving with their appropriate arm, the other thirty-eight companies being armed and equipped as infantry, there are *two batteries* with the main Army in Mexico served by *ordnance men* (with several officers) and one by a company of Maryland and District of Columbia Volunteers.

"At the last session of Congress, an increase of the Ordnance Corps was authorized, because the number of officers was deemed inadequate to the wants of that branch of the service. It would seem, therefore, peculiarly proper to confine officers of ordnance to defined objects of that department * * * * * their appropriate if not legitimate duties are with the supplies and depots of their department. Economy, as well as military propriety, requires that all the harnessed batteries be transferred to the artillery, and it is respectfully requested that the transfer be directed accordingly."

Such a statement, made by so high an officer as the Adjutant-General, would seem to warrant the inference that the ordnance officers with the Army have not performed "their appropriate, if not legitimate duties," and he omits to state the fact that the mountain howitzer and rocket battery was organized and sent to the field by the special order of the General-in-Chief, sanctioned by the Secretary of War. Does he mean to interpose his own opinion on this subject against that of the highest authority? It appears also that this is the only battery, in the proper acceptation of the term, that is habitually served by ordnance men, although the Adjutant-General says there are two batteries.

The chief ordnance officer with the Army reports to this office as follows: "The statement that there are two batteries with the main Army in Mexico, served by ordnance men (with several officers) is erroneous. A battery of mountain howitzers served by a company of ordnance men organized by special authority of the Secretary of War, and attached as provided by law to the regiment of *voltigeurs*, is with this Army. The other battery alluded to, must be the siege train. All the siege artillery of the Army (our own as well as that captured from the enemy) is under my charge, and has always been so, from the organizing the expedition against Vera Cruz, and has been kept in order and ready for service, and transported with the Army, by the officers and men of the Ordnance Department, in *addition* to their other duties.

"The siege train company of ordnance, organized by special authority from the Secretary of War, the men of which are artisans and laborers as well as soldiers, and who receive higher pay than privates of artillery,

* Ex. Doc. No. 8, First session, Thirtieth Congress, p. 79, printed on page 204 hereof, which see.

have been engaged *every day* during the campaign, when not actually marching or fighting, *working* at their respective trades and employments, repairing and keeping in order all the material of the Army, and have doubly earned all the pay they have received. I refer to the reports of 'work done' at different places, particularly at Puebla and Mexico.

"At the attack on Chapultepec and the city of Mexico, several siege batteries were employed, served by several companies of artillery, as well as the company of ordnance, who could be used *economically* for this purpose, as all other duties were suspended during the fight; and the result of the firing has shown that the officers and men of the Ordnance Department *knew how* to use their pieces.

"After the city was secured, pieces were placed in position at different points for defense, in charge of guards or other troops, and the artillery of ordnance were stationed at the arsenal (where the siege-guns and all spare pieces were parked) and resumed their labors under the direction of their officers. The company has always furnished a guard for the ordnance depot."

The monthly returns of work done by ordnance men, above referred to, show an immense amount of labor performed and services rendered in the Ordnance Department of the Army in Mexico, and as no complaints have been made of any deficiency in that branch of the service, the inference is plain that the "legitimate duties" of the corps have not been neglected, while the service with the guns and mortars has been extra, and in addition to the ordinary duties. As to the value of these additional duties the official reports of the General-in-Chief are referred to with some degree of pride for their due estimation.

In conclusion, it is respectfully stated that a knowledge of the great use made by the French army in Algeria of the mountain howitzer, joined to the fact that a new description of rocket had just been obtained, led to the proposal from this office that a rocket and howitzer battery should be provided for use in Mexico, to be served by ordnance men. This proposal was approved by the Secretary of War and the commanding general; a new method of fixing the ammunition was also adopted, and a course of practice was had at Fort Monroe, whereby the necessary skill was obtained to make the arm efficient in the field and its capacity for service developed.

When the occasion for this special application of the service of ordnance men shall have passed, the transfer of the battery to the artillery, so much urged by the Adjutant-General, may be effected, or if retained by the Voltigeur Regiment, as provided by law, other guns may be furnished them.

It may not be possible to give the foregoing explanations such publicity as pertains to the objectionable matters in the Adjutant-General's report, but I have felt it my duty to present the subject in its true light for the information of the President and the Secretary of War.

Respectfully submitted.

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Hon. WM. L. MARCY,
Secretary of War.

SIR: In compliance with your orders of 29th ultimo, designed to meet the call of the House Committee on Public Expenditures, I have the honor

to inclose a statement of the amount expended for the ordnance service of the War Department, on account of the existing war with Mexico (so far as returns have been received), with the amount from each appropriation.

I am, sir, &c.,

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

Hon. WM. L. MARCY,
Secretary of War.

Statement of the amount expended under the direction of the Ordnance Bureau, on account of the existing war with Mexico, so far as returns have been received.

	Amount charged to each of the following appropriations.				Total.
	Mexican hostilities.	Ordnance stores, and supplies.	Ordnance service.	Arming the militia.	
Payments at the Ordnance Office in Washington, by requisitions on the Treasury to various individuals for siege and field artillery, swords, sabers, and pistols, accouterments, gunpowder, and projectiles.....	\$453,685 53	\$304,593 53	.....	\$63,459 26	\$821,738 32
Expended at arsenals in the manufacture of gun-carriages, mortarbeds, caissons, battery-wagons, traveling-forges, artillery harness, accouterments, and ammunition.....	295,207 54	529,579 23	.....	32,744 96	857,531 73
Expended by officers in Mexico and Texas for services and supplies required in the field.....	28,453 33	7,950 53	\$6,503 85	.....	42,907 71
Total.....	777,346 40	842,123 29	6,503 85	96,204 22	1,722,177 76

GEO. TALCOTT,
Lieutenant-Colonel of Ordnance.

ORDNANCE OFFICE.
Washington, April 10, 1848.

[93. W. D., 1848.]

ORDNANCE OFFICE,
Washington, June 5, 1848.

SIR: Although the laws relating to the Ordnance Department vest in the Colonel of Ordnance the duty of providing all ordnance stores, and prescribing the patterns, forms, and dimensions thereof, under the direction of the Secretary of War, it has always been deemed advisable to have the aid of a board of officers in adjusting the details of this branch of the military service; various officers of high rank were, from time to time, associated upon such boards, up to the year 1838. Finding that little or no progress had been made in establishing these details, during a period of six years, the then Secretary of War, in April, 1839, convened a board of four ordnance officers and charged them with that duty, which, in a short time, was made by article 9, Ordnance Regulations, the special duty of ordnance officers, instead of being open to officers of other corps.

The board then formed has continued its labors up to a recent date,

and I hazard nothing in asserting that whatever of value is now found in our system of artillery, small-arms, and supplies of ordnance stores, is due to the talents, zeal, and devotion to that duty, of the board of ordnance officers during the period that has elapsed since its organization.

Having been promoted to the position of chief of the department, it becomes my duty to request a new organization of a board, in conformity to the 9th article, Ordnance Regulations, to consist of such a number, and of such individual officers, as you may consider proper and most useful to accomplish the duties to be performed.

I am, sir, respectfully, your obedient servant,

GEO. TALCOTT,
Colonel of Ordnance.

Hon. W. L. MARCY,
Secretary of War.

Approved June 6th, 1848:

W. L. MARCY.

ORDNANCE OFFICE,
June 7, 1848.

Respectfully returned to the Secretary, that the detail of officers may be made.

GEO. TALCOTT,
Colonel of Ordnance.

The following officers will hereafter constitute the Board of Ordnance under the 9th article of the Ordnance Regulations, viz:

Major R. L. Baker, Capt. A. Mordecai, Capt. B. Huger.

W. L. MARCY.

WAR DEPARTMENT, *June 7, 1848.*

[Letters to W. D., vol. 9, p. 255.]

ORDNANCE OFFICE,
Washington, June 10, 1848.

SIR: In answer to the resolution of the Senate of the 28th of April, 1848, which calls for a report—

First. How many public armories there are belonging to the United States in which fire-arms are manufactured, and where the same are located and the date of the commencing of manufacturing operations in each?

Second. How much actual capital is and has been invested in such armories; and what proportion in each for sites, buildings, power, permanent machinery, &c., specifying the amounts under separate heads, to date of report?

Third. How much money has been expended annually in each of said armories for the manufacture of arms, in salaries, wages, and materials; or in any of the elements entering into all the current expenses of manufacturing such arms, independently of fixed capital and the interest thereon?

Fourth. How many small-arms have been produced annually from each of the said armories: all the cost of construction, and how many of the various description of arms, and of what descriptions, are now in serviceable condition?

Fifth. What number of arms have been condemned from time to time; and what disposition has been made of condemned arms at the government armories, and if sold, at what prices?

Sixth. How many small-arms and weapons of war, great and small, have been procured from other sources than from the government armories, and from what sources and in what amounts? If by private contracts, at what prices for each description? If from other governments, from which and at what prices?

I have the honor to report, in answer to the first head, that there are but two armories belonging to the United States in which fire-arms are

manufactured, one of which is situated at Springfield in the State of Massachusetts, and the other at Harper's Ferry in the State of Virginia. The first was established in 1795, and the manufacture of muskets was commenced thereat during the same year; the other was established during the following year, but the manufacture did not commence thereat till 1801.

In answer to the second, third, and fourth heads of inquiry, I have the honor to submit two tabular statements, marked A and B, which answer, as far as the means of this office will allow, the various points embraced in those heads, with the exception of that portion of the fourth which calls for the number and description of small-arms now in serviceable condition, and this is given in the further statement marked C. The information called for by the fifth head of the resolution is given in statement marked D, and that called for by the sixth in statement marked E.

The resolution with the Hon. Mr. Clayton's letter of the 6th ultimo in relation to it are herewith returned.

With great respect, &c.,

GEO. TALCOTT,
Colonel of Ordnance.

A.—Statement of expenditures at the United States Armory at Springfield, Mass., and of the arms and appendages made therein, from its establishment to the 31st of March, 1848.

[To accompany report to the Secretary of War of 10th June, 1848, in answer to a resolution of the Senate of 28th April, 1848.]

Years.	From its establishment, in 1795, to—	For land, including the mill-seats and the houses on the land when purchased.	For buildings, mills, dams, canals, or races, and other permanent improvements, including machinery.	During these years the buildings and improvements with the machinery and repairs of buildings and mills, dams, &c.	For the manufacture and repair of arms, including material, wages, salaries, stationery, postage, forage, horses, &c.	Miscellaneous expenses, not included in the foregoing.	Total, exclusive of lands and improvements.
31st December, 1821.....	\$17,260 41	\$97,527 23	\$19,736 05	\$134,623 69	\$2,335,160 95	\$29,094 54	\$2,364,255 49
31st December, 1822.....	195 78	5,998 19	1,607 71	7,801 68	172,110 92	305 99	172,416 91
31st December, 1823.....		3,387 73	2,087 54	5,375 27	173,595 76	1,016 98	176,612 74
31st December, 1824.....	245 68	21,089 10	575 00	21,969 78	163,942 37	1,215 92	165,188 29
31st December, 1825.....	181 88	4,206 25	4,395 03	8,873 16	169,671 37	1,438 50	171,109 87
31st December, 1826.....		10,262 64	720 65	10,973 29	168,118 92	1,172 12	169,291 04
31st December, 1827.....		18,384 78	1,437 50	19,822 28	156,104 83	1,423 43	157,528 26
31st December, 1828.....		8,301 81	5,175 18	13,476 99	172,150 20	1,448 12	173,598 32
31st December, 1829.....		1,881 20	4,774 62	6,655 82	174,749 12	1,278 25	176,027 37
31st December, 1830.....	2,200 00	2,426 00	1,176 22	5,802 22	180,109 95	1,611 83	181,721 78
31st December, 1831.....		9,244 86	9,244 86	9,244 86	183,336 51	1,737 34	185,073 85
31st December, 1832.....		6,442 58	6,442 58	6,442 58	175,006 81	1,219 19	176,226 00
31st December, 1833.....		5,659 72	5,659 72	5,659 72	172,938 92	1,319 54	173,258 46
31st December, 1834.....		12,295 44	12,295 44	12,295 44	171,880 41	388 18	172,277 59
31st December, 1835.....		19,687 00	19,687 00	19,687 00	145,268 57	4 35	145,272 92
31st December, 1836.....		27,579 91	27,579 91	27,579 91	158,687 09	346 79	159,033 88
31st December, 1837.....		22,735 08	22,735 08	22,735 08	173,937 82	2,659 08	176,597 80
31st December, 1838.....		2,609 03	2,609 03	2,609 03	183,006 35	2,187 52	185,203 87
30th September, 1839.....		6,936 31	6,936 31	6,936 31	131,821 77	2,915 77	134,757 54
30th September, 1840.....		14,327 47	14,327 47	14,327 47	126,294 14	124,139 10	124,139 10
30th September, 1841.....		10,592 39	10,592 39	10,592 39	205,471 83	661 56	206,133 39
30th September, 1842.....		14,748 22	14,748 22	14,748 22	139,162 70	2,221 00	141,383 70
30th June, 1843.....		15,466 58	15,466 58	15,466 58	61,712 70	1,636 85	63,349 55
30th June, 1844.....		38,098 97	38,098 97	38,098 97	100,285 41	1,536 32	101,841 73
30th June, 1845.....	4,135 00	28,341 20	28,341 20	28,341 20	143,167 34	1,538 70	144,706 04
30th June, 1846.....		34,255 56	34,255 56	34,255 56	163,365 85	1,949 53	165,315 38
30th June, 1847.....	10,506 00	24,123 79	39,336 37	49,009 19	175,421 24	3,897 44	179,318 68
31st March, 1848.....	7,888 75	38,129 18		45,587 93	102,986 14	976 89	110,963 03
Total.....	42,213 50	504,898 22	91,600 50	638,772 22	6,572,484 99	66,407 59	6,638,892 58

* This line gives the totals of the report in detail (see State Papers, vol. 2, Military Affairs, page 478), except that an error in that report in the proportion between the land and buildings is here corrected.

A.—Statement of expenditures at the United States Armory at Springfield, Mass., &c.—Continued.

Years.	Articles manufactured.												
	Flint-lock mus- kets.	Percussion mus- kets.	Rifles.	Pistols.	Carbines.	Musketoons.	Cadet arms.	Ball-screws.	Wipers.	Screw-drivers.	Spring vices.	Flint-caps.	Arm-chests.
From its establishment, in 1795, to—	178,759		250	1,000	1,202			2,600		38,000	2,600		1,200
31st December, 1821.....	13,200							1,440	2,200	13,200	1,320		654
31st December, 1822.....	14,000							1,400	15,831	14,000	1,400		1,065
31st December, 1823.....	14,000							1,400	15,100	14,000	1,400		861
31st December, 1824.....	15,000							1,500	15,000	15,000	1,500		237
31st December, 1825.....	15,500							1,550	15,500	15,500	1,550		249
31st December, 1826.....	14,500							1,450	14,500	14,500	1,450		824
31st December, 1827.....	15,500							1,550	15,500	15,500	1,550		721
31st December, 1828.....	16,500							1,650	31,500	16,500	1,650		934
31st December, 1829.....	16,500							1,650	16,500	16,500	1,650		1,680
31st December, 1830.....	16,200						300	1,620	16,538	16,540	1,655		1,183
31st December, 1831.....	13,600							1,360	21,200	13,600	1,360		579
31st December, 1832.....	12,400							1,240	17,400	12,400	1,240		110
31st December, 1833.....	14,000							1,458	22,063	14,706	2,032		
31st December, 1834.....	13,000							1,361	13,727	7,862	1,330		
31st December, 1835.....	13,500								10,440	13,414	211		
31st December, 1836.....	14,500							1,393	11,571	15,488	1,205		
31st December, 1837.....	15,000							5,335	18,905	15,035	2,181		
31st December, 1838.....	10,000							3,684	11,729	12,435	2,047		
30th September, 1839.....	5,967								15,605	12,019	2,012		
30th September, 1840.....	10,700								14,878	8,051	613		
30th September, 1841.....	9,720								10,939	5,689	1,833		
30th September, 1842.....	4,600							1,199	212	767			32
30th June, 1843.....	4,700	2,956						430	8,529	17,085	2,059	1,239	71
30th June, 1844.....		11,107						50	3,176	31,176	2,069	1,147	123
30th June, 1845.....		14,265							12,636	12,204	2,544		108
30th June, 1846.....		14,300				201		3,000	19,736	26,046	2,544		1,097
30th June, 1847.....		11,250				702		2,052	19,736	26,046	2,544		287
31st March, 1848.....						2		1,600	18,354	17,242	302		
Total	471,346	53,878	250	1,000	1,204	903	806	41,972	389,283	393,426	44,964	209,707	11,999

* Percussion.

B.—Statement of expenditures at the United States Armory at Harper's Ferry, Va., and of the arms and appendages made therein from its establishment to the 31st of March, 1848.

[To accompany report to the Secretary of War of 10th June, 1848, in answer to a resolution of the Senate of 28th April, 1843.]

Years.	For land, including mills-sites and the houses on the land when purchased.					Buildings, mill-dams, canals, or races, and other permanent improvements, including machinery.		Repairs of buildings, dams, &c.		Total for lands, buildings, and improvements.		For the manufacture and repair of arms, including materials, and wages, salaries, stationery, post-ages, forage, horses, &c.		Miscellaneous expenses, not included in the foregoing.		Total, exclusive of lands and improvements.	
From its establishment, in 1796, to—																	
31st December, 1821	\$42, 877 28					\$256, 509 41		\$66, 793 32		\$266, 180 01		\$2, 171 400 85		\$63, 438 49		\$2, 234, 922 34	
31st December, 1822	5, 134 75					5, 134 75		350 00		5, 484 75		18, 615 84		1, 086 00		149, 701 84	
31st December, 1823	11, 037 80					11, 037 80		.....		11, 037 80		173, 021 14		592 00		173, 513 14	
31st December, 1824	16, 271 96					16, 271 96		.....		16, 271 96		179, 325 98		2, 660 13		179, 917 98	
31st December, 1825	4, 101 30					4, 101 30		2, 171 50		6, 273 00		181, 856 91		1, 675 81		184, 517 04	
31st December, 1826	9, 847 06					9, 847 06		431 97		10, 279 63		155, 358 92		2, 099 00		157, 034 73	
31st December, 1827	7, 550 87					7, 550 87		.....		7, 550 87		184, 370 82		1, 457 82		185, 828 62	
31st December, 1828	6, 533 00					6, 533 00		5, 500 00		12, 033 00		184, 114 80		3, 612 37		187, 727 33	
31st December, 1829	1, 461 82					1, 461 82		157 33		1, 619 15		170, 444 96		1, 344 60		171, 789 56	
31st December, 1830	14, 431 93					14, 431 93		.....		14, 431 93		168, 664 95		1, 608 85		170, 273 80	
31st December, 1831	18, 237 33					18, 237 33		.....		18, 237 33		204, 211 05		674 26		204, 885 31	
31st December, 1832	18, 408 68					18, 408 68		.....		18, 408 68		171, 785 40		1, 192 08		172, 977 48	
31st December, 1833	33, 422 91					33, 422 91		.....		35, 022 91		173, 822 04		1, 550 28		175, 372 32	
31st December, 1834	2, 600 00					45, 038 16		.....		45, 038 16		138, 560 34		7, 696 83		146, 257 17	
31st December, 1835	23, 432 47					23, 432 47		.....		23, 432 47		149, 487 27		2, 292 88		151, 780 15	
31st December, 1836	28, 678 42					28, 678 42		.....		28, 678 42		149, 544 33		2, 839 42		152, 383 75	
31st December, 1837	81, 579 27					81, 579 27		.....		81, 579 27		178, 231 70		6, 711 16		184, 942 86	
31st December, 1838	55, 541 11					55, 541 11		.....		55, 541 11		150, 677 01		4, 958 23		155, 635 02	
30th September, 1839	26, 752 49					26, 752 49		.....		26, 752 49		130, 381 80		3, 956 23		134, 338 03	
30th September, 1840	18, 315 53					18, 315 53		.....		18, 315 53		150, 318 66		4, 176 89		154, 495 16	
30th September, 1841	57, 578 88					57, 578 88		16, 423 99		74, 002 87		85, 389 24		825 40		85, 214 27	
30th September, 1842	27, 598 60					27, 598 60		7, 661 71		34, 260 31		90, 698 56		3, 348 67		94, 047 23	
30th June, 1843	29, 527 37					29, 527 37		2, 809 66		32, 337 03		139, 292 76		5, 144 10		144, 436 86	
30th June, 1844	32, 736 40					32, 736 40		315 06		33, 051 46		168, 000 74		7, 242 06		175, 242 80	
30th June, 1845	28, 386 04					28, 386 04		.....		28, 386 04		200, 236 28		4, 556 14		204, 792 42	
30th June, 1846	62, 468 77					62, 468 77		.....		62, 468 77		137, 774 09		139, 503 77		6, 595, 358 96	
30th June, 1847	35, 346 27					35, 346 27		.....		35, 346 27		.....		.....		.....
31st March, 1848	30, 632 66					30, 632 66		.....		30, 632 66		.....		.....		.....
Total	76, 109 94					1, 022, 562 70		105, 067 23		1, 203, 729 87		6, 455, 855 19		.....		.....

* This line gives the totals of the report in detail made 30th November, 1822. (See State Papers, vol. 2, Military Affairs, page 481.)

B.—Statement of expenditures at the United States Army at Harper's Ferry, &c.—Continued.

Articles manufactured.														
Years.	Flint-lock muskets.	Percussion muskets.	Rifles.	Pistols.	Hall's patent rifle.	Carbines, Hall's.	Ball screws.	Wipers.	Screw-drivers.	Bullet molds.	Spring vices.	Print caps.	Rifle charges and flasks.	Arm-chests.
From its establishment, in 1796, to—														
31st December, 1821	119,911		19,718	4,088			19,718	37,750	19,718	19,718	6,034		19,718	
31st December, 1822	10,000							5,334						500
31st December, 1823	12,000							10,343						921
31st December, 1824	10,539				1,000			8,173		1,000			1,000	212
31st December, 1825	14,000							11,000						848
31st December, 1826	8,720							26,926						888
31st December, 1827	12,020							53,112						772
31st December, 1828	10,000				1,000			31,827			10,100			1,164
31st December, 1829	8,895							34,998					1,000	837
31st December, 1830	10,130							25,000		1,000				564
31st December, 1831	11,160							35,679						274
31st December, 1832	12,000							3,653						137
31st December, 1833	12,000													102
31st December, 1834	10,000													74
31st December, 1835	9,150													226
31st December, 1836	8,200													447
31st December, 1837	12,000													626
31st December, 1838	5,850													1,563
30th September, 1839	8,304													669
30th September, 1840	8,650													2
30th September, 1841	6,575													132
30th September, 1842	3,105													298
30th June, 1843	608													112
30th June, 1844		2,225												311
30th June, 1845		12,203	700											1,084
30th June, 1846		12,000	*3,054											606
30th June, 1847		8,200	*2,202											523
31st March, 1848														14,199
Total	336,037	34,628	25,674	4,088	22,870	3,021	45,010	334,562	366,314	27,787	34,006	201,876	30,373	14,199

* Percussion.

ORDNANCE OFFICE, Washington, 10th June, 1848.

C.—Statement of each description of arms which were in a serviceable condition at the various armories and arsenals on the 30th June, 1847, being the date of the last inventories received.

[To accompany the report to the Secretary of War of 10th June, 1848, in answer to a resolution of the Senate of 28th April, 1848.]

Description of arms on hand in serviceable condition.	Of those made at the national armories.	Of those obtained from private armories.
Percussion muskets, first class.....	64,852	
Flint-lock muskets, first class.....	116,061	48,904
Flint-lock muskets, second class.....	147,791	12,583
Flint-lock muskets, third class.....	171,607	29,918
Percussion rifles.....	3,645	1,187
Flint-lock rifles.....	498	3,604
Hall's patent rifles.....	18,882	
Carbines.....	3,659	4,277
Pistols.....	1,025	22,426
Non-commissioned officers' swords.....		*204
Musicians' swords.....		*487
Non-commissioned officers' artillery swords.....		*27
Privates' artillery swords.....		*5,484
Cavalry sabers.....		*2,842
Horse-artillery sabers.....		*275

* Part from private armories and part from abroad.

The arms above enumerated are exclusive of those in the hands of the troops and in depot in Mexico. A large portion of the fire-arms obtained from the private armories have been issued to the States and Territories under the act of Congress of 23d April, 1808, "making provision for arming and equipping the whole body of the militia of the United States."

ORDNANCE OFFICE, Washington, 10th June, 1848.

D.—Statement referred to in the report to the Secretary of War of 10th June, 1848, in answer to a resolution of the Senate of 28th April, 1848.

In June, 1842, upon representation made to the Secretary of War, he directed a classification to be made of all muskets at the armories and arsenals. The first class to include all new muskets made since 1831, and all the remainder to be thoroughly inspected previous to being classified. Those made from 1821 to 1831, inclusive, which might be found good and serviceable, to be placed in the second class; those made from 1812 to 1820, inclusive, which might be found serviceable, to be placed in the third class; and those made prior to 1812, and all not worthy of repair, to form a fourth class.

The officer who performed this service was assisted by two of the armory inspectors, one from each armory, aided by others stationed at the several armories and arsenals. The following were the results. There were on hand at the two armories and at the various United States arsenals, at the time the inspections were made, as follows:

Places where the muskets were made.	Whole number on hand.	Falling within the first class and not presented for inspection.	Presented for inspection.	Classification of those presented for inspection.		
				Second class.	Third class.	Fourth class.
National armories.....	586,513	242,908	343,605	63,335	198,050	82,220
Private armories.....	118,133	50,826	67,307	12,850	30,221	24,236
Foreign.....	2,365		2,365			2,365
Total.....	707,011	293,734	413,277	76,185	228,271	108,821

Of the foregoing fourth class condemned muskets there have been sold, under the act of 3d March, 1825, in the manner prescribed by regulations, as follows: 3,609 at \$2 each, 100 at \$2.30, 27 at \$2.87½, 40 at \$2.75, 60 at \$2.50, 773 at \$2.37½, 1,120 at \$2.35, 460 at \$2.32½, 160 at \$2.30, 2,100 at \$2.25, 2,880 at \$2.20, 500 at \$2.15, 594 at \$2.12½, 300 at \$2.10, 7,625 at \$2.07½, 1,322 at \$2.05, 300 at \$2.02½, 20,669 at \$2.00, 40 at \$1.87½, 300 at \$1.85, 200 at \$1.80, 998 at \$1.75, 4,442 at \$1.72½, 1,680 at \$1.70, 780 at \$1.65, 139 at \$1.62½, 80 at \$1.57½, 3,325 at \$1.55, 405 at \$1.52½, 1,473 at \$1.50, 400 at \$1.40, 1,007 at \$1.27, 188 at \$1.25, 601 at \$1.22½, 100 at \$1.15, 37 at \$1.12½, 40 at \$1.05, 2,187 at \$1.41, 419 at \$0.87½, 50 at \$0.85, 584 at \$0.81½, 11 at \$0.80, 513 at \$0.62½, 1,400 at \$0.61, 211 at \$0.50, 255 at \$0.40, 39 at \$0.28½, and 10 at \$0.21; making 65,173 in all. There have been sold under other inspections and condemnations, from the year 1825 to the present time, 41,325 muskets, at prices from \$5 down to 13 cents each, 2,139 rifles from \$5 down to 30 cents each, 673 carbines from \$4 down to 50 cents each, 413 pistols from \$3 down to 22 cents each, and 3,385 swords and sabers from \$1 to 9½ cents each.

It is proper here to state that all the arms thus sold, had been used by the troops, many quite worn-out and turned in as no longer serviceable, and were such as no expenditure in their repair would render suitable for issue to American troops in the present advanced stage of improvement in all kinds of small-arms.

ORDNANCE OFFICE, Washington, 10th June, 1848.

E.—*Statement of the number of small arms, and weapons of war of all kinds, great and small, procured from other sources than from the government armories; from what sources, in what amounts, and what prices. To accompany the report to the Secretary of War, 10th June, 1848, in answer to a resolution of the Senate of 28th April, 1848.*

Small arms procured from private armories in the United States:

34,477 muskets at \$10.75.	27,650 pistols at \$9.
10,860 muskets at \$12.	30,000 pistols at \$7.50.
105,301 muskets at \$12.25.	8,252 percussion pistols at \$6.74 $\frac{1}{2}$.
16,500 muskets at \$12.63 $\frac{1}{2}$.	124 Jenks' carbines at \$18.
45,885 muskets at \$13.	20 Jenks' rifles at \$20.
30,609 muskets at \$14.	160 Colt's carbines at \$45.
9,900 muskets at \$14.75.	100 Colt's carbines at \$32.50.
2,240 muskets at \$15.	50 Colt's pistols at \$25.
2,100 muskets at \$16.25.	1,000 Colt's pistols at \$28.
621 patent rifles at \$25.	25,317 cavalry sabers at \$5.95 average.
5,700 Hall's patent rifles at \$17.50.	2,000 cavalry sabers at \$8 each.
11,321 flint-lock rifles at \$14.50.	2,390 cavalry sabers at \$7.50 each.
6,000 flint-lock rifles at \$14.75.	5,600 cavalry sabers at \$7 each.
10,162 flint-lock rifles at \$15.	1,150 horse artillery sabers at \$5.50 each.
12,780 flint-lock rifles at \$17.	1,350 horse artillery sabers at \$5 each.
4,300 percussion rifles at \$12.77 $\frac{1}{2}$.	2,579 N. C. O. swords at \$2.50 each.
9,340 percussion rifles at \$13.87 $\frac{1}{2}$.	2,800 N. C. O. swords at \$5.50 each.
1,028 carbines at \$20.	1,000 musicians' swords at \$4 each.
2,840 carbines at \$18.50.	900 musicians' swords at \$4.40 each.
9,295 carbines at \$18.	1,900 artillery swords at \$4.12 $\frac{1}{2}$ each.
5,550 carbines at \$17.50.	3,500 artillery swords at \$4.25 each.
40,400 pistols at \$8.	4,000 artillery swords at \$4 each.

Iron artillery procured from private foundries in the United States:

208 42-pounder guns at \$5.94 per 100 pounds.	21 8-inch siege and garrison mortars at \$8.50 per 100 pounds.
1,362 32-pounder guns at \$5.94 per 100 pounds.	20 12-pounder guns at \$5.94 per 100 pounds.
60 32-pounder guns at \$6 per 100 pounds.	23 12-pounder guns at \$6 per 100 pounds.
1,077 24-pounder guns at \$5.94 per 100 pounds.	10 10-inch seacoast howitzers at \$7 per 100 pounds.
21 24-pounder guns at \$6 per 100 pounds.	7 10-inch seacoast howitzers at \$6.50 per 100 pounds.
20 18-pounder guns at \$5.94 per 100 pounds.	122 8-inch seacoast howitzers at \$5.94 per 100 pounds.
22 18-pounder guns at \$6 per 100 pounds.	13 8-inch seacoast howitzers at \$6.50 per 100 pounds.
200 24-pounder flank defense howitzers at \$9 per 100 pounds.	25 8-inch siege howitzers at \$6.50 per 100 pounds.
91 8-inch columbiads at \$5.50 per 100 pounds.	223 6-pounder field guns at \$70 each.
43 8-inch columbiads at \$6.50 per 100 pounds.	74 6-pounder field guns at \$80 each.
15 10-inch columbiads at \$6.50 per 100 pounds.	2 6-pounder field guns at \$85 each.
6 8-inch ship guns at \$133 per ton.	131 6-pounder field guns at 10 cents per pound.
1 13-inch seacoast mortar at \$5.94 per 100 pounds.	14 6-pounder field guns (malleable) at 40 cents per pound.
1 12-inch seacoast mortar at \$5.94 per 100 pounds.	3 9-pounder field guns (malleable) at 40 cents per pound.
10 10-inch seacoast mortars at \$5.94 per 100 pounds.	2 12-pounder field guns (malleable) at 40 cents per pound.
15 10-inch siege and garrison mortars at \$6.50 per 100 pounds.	34 24-pounder howitzers at \$75 each.
15 10-inch siege and garrison mortars at \$8.50 per 100 pounds.	31 24-pounder howitzers at \$91.70 each.
	2 24-pounder howitzers (malleable) at 40 cents per pound.

Bronze field artillery procured from private foundries in the United States:

23 12-pounder guns at 60 cents per pound.	21 12-pounder howitzers at 60 cents per pound.
8 12-pounder guns at 40 cents per pound.	21 12-pounder howitzers at 50 cents per pound.
29 9-pounder guns at 60 cents per pound.	97 12-pounder howitzers at 40 cents per pound.
61 6-pounder guns at 60 cents per pound.	12 12-pounder mountain howitzers at \$225 each.
66 6-pounder guns at 50 cents per pound.	1 12-pounder mountain howitzer at \$200.
53 6-pounder guns at 45 cents per pound.	36 12-pounder mountain howitzers at 75 per pound.
434 6-pounder guns at 40 cents per pound.	
56 24-pounder howitzers at 60 cents per pound.	
19 24-pounder howitzers at 40 cents per pound.	

Artillery procured from foreign countries:

Sweden.

12 12-pounder iron guns at 8½ cents per pound.
12 6-pounder iron guns at 13 cents per pound.
6 24-pounder iron howitzers at 10 cents per pound.
6 12-pounder iron howitzers at 14 cents per pound.

Belgium.

2 12-pounder iron guns at 7 cents per pound.
2 6-pounder iron guns at 10 cents per pound.
2 24-pounder iron howitzers at 9 cents per pound.
2 12-pounder iron howitzers at 10 cents per pound.
4 6-pounder bronze guns at 40 cents per pound.

Small arms procured from foreign countries:

England.

500 cavalry sabers at \$4.28, without duty.
100 artillery swords at \$3.13, without duty.
100 sergeants' swords at \$5.01, without duty.
10 staff sergeants' swords at \$8.38, without duty.
20 drummers' swords at \$4.87, without duty.

Prussia.

2,600 light cavalry sabers at \$3, without duty.
1,000 light cavalry sabers at \$3.76, without duty.
40 sergeants' sabers at \$4.07, without duty.
500 artillery sabers at \$2.50, without duty.
1,000 non-commissioned officers' swords at \$3.50, with duty.
500 musicians' swords at \$3, without duty.

France.

500 light cavalry sabers at \$4.41.
100 artillery sabers at \$3.82.
50 non-commissioned officers' swords at \$3.20.

Purchased by G. Boyd, in Europe:

480 muskets at \$7; and
100 muskets at \$9; for which he was allowed in addition \$2,288.

This office contains no record of the artillery purchased prior to 1820. No cannon, howitzers, or mortars have been made at works belonging to the United States; all are procured from private foundries; but since 1841, the quality of the metal and the whole process of manufacture is subject to close examination by an agent and officer of this department, in addition to the proof they are subjected to when offered for acceptance. The carriages for the forts and for field artillery are all manufactured at the government arsenals, distinct from the armories, where also are made the caissons, battery wagons, traveling forges, harness, and implements of all kinds for the service of artillery, and where all ammunition is also prepared both for artillery and small arms.

No weapons of war, great or small, have, in the language of the resolution, been procured from other governments; those above enumerated, and pattern and model arms, have been purchased from the manufacturers, in the countries named.

ORDNANCE OFFICE, Washington, June 10, 1848.

[Letters to W. D., vol. 9, p. 263.]

ORDNANCE OFFICE,
Washington, July 10, 1848.

SIR: I respectfully inclose you herewith a statement addressed to the President and which I rely upon you to present, with such favorable remarks as the justice of the case demands.

I am, sir, &c.

GEO. TALCOTT,
Colonel of Ordnance.

Hon. W. L. MARCY,
Secretary of War.

ORDNANCE OFFICE,
Washington, July 10, 1848.

SIR: I deem it my duty respectfully to place before you the services of officers of the Ordnance Department, rendered at the public establishments, in the planning and adjusting the various details of that branch of the service, constructing and providing the material of war for use in the field, by the skillful discharge of which duties our troops profited largely; indeed, to the excellent quality of our arms and munitions, may be ascribed, in some measure, the success of our troops in the various battles in Mexico. I say this without desiring to abstract one particle from the undoubted valor of our soldiers, who deserve all praise for their heroism.

The amount of money disbursed at one arsenal of construction during the war was nearly half a million of dollars, which will give some idea of the labor devolved upon the commanding officer.

The disbursements at other posts were also large, and all this labor, solicitude, and devotion to duty, by the officers, who were necessarily debarred from joining the Army in the field, because their services were indispensable at home, in my judgment, demands from the government some consideration, which can be shown in no better mode than by conferring upon them brevets for valuable (I might say invaluable) and meritorious services.

Many of the majors and captains have held their present rank a long time; the senior of the former, 21 years, and of the latter, 16 years.

The labors of several have been, and are, of a nature demanding a high grade of professional intelligence and are excessively laborious, while the compensation awarded for these important duties is a bare subsistence.

The services of ordnance officers, at the public establishments, being quite as indispensable to success in war as those of officers in the field, I trust it is only necessary to bring their labors to your notice to obtain such a measure of justice as may be due to them.

Very respectfully, I am, sir, your obedient servant,

GEO. TALCOTT,
Colonel of Ordnance.

To the PRESIDENT.

[Letters to W. D., vol. 9, p. 264.]

ORDNANCE OFFICE,
Washington, July 11, 1848.

SIR: The superintendent of Springfield Armory has applied to me for definite instructions in reference to the compensation of contract

inspectors, and as it is difficult to determine precisely what are the allowances to the inspectors under the law and regulations now existing, I beg leave to bring the matter to your notice for a decision thereon; at the same time laying before you the facts of the case.

The contract inspectors are assistant armorers or sub inspectors from the national armories, detailed as occasion requires, to inspect arms manufactured for the government at private establishments. The compensation of inspectors *at the national armories* is fixed by the 2d section of the act of 23d August, 1842.

Subsequent to that act, viz, May 6, 1843, a regulation was issued from the War Department granting to the inspectors of the armories, engaged in the inspection of arms at arsenals, &c., their actual necessary expenses incident to this service, including those of travel. A copy of this regulation is inclosed herewith. Under this regulation these inspectors have charged (and their accounts have been admitted by the Second Comptroller), besides their salary of \$800 per annum, their *traveling* expenses from the national armory to the places of inspection and back, and their other actual necessary expenses incident to the duty of inspecting at private armories, such as *board* and *washing*, while so engaged. Inasmuch as a detail for contract inspection imposes on the inspectors so detailed, additional expenses for the time, it seems but just and right to reimburse them, but as it is difficult, if not impossible, to determine in all cases what are actual necessary expenses (the amount heretofore charged therefor varying with different persons and at different times), I am of opinion that it would be better to make a definite fixed allowance.

The average of the accounts of expenses, which appear to have been fairly kept would make this allowance fifty cents a day. I therefore recommend that the inspectors detailed from the national armories for contract inspection be allowed fifty cents per day during the time they are engaged in this service, in addition to the regulation mileage, viz, eight cents. This allowance will not conflict with the act of 23d August, 1842, which applies to inspectors at the national armories and not to contract inspectors at private establishments, and I understand that this is the view of the matter taken by the Second Comptroller, in regard to the accounts under the regulations of the 6th May, 1843, heretofore passed at his office. I would also suggest that the proposed regulation may be made to take effect from the 1st of July, the beginning of the present quarter and fiscal year.

Respectfully, &c.,

GEO. TALCOTT,
Colonel of Ordnance.

Hon. WM. L. MARCY,
Secretary of War.

[Letters to W. D., vol. 9, p. 273.]

ORDNANCE OFFICE,
Washington, August 11, 1848.

SIR: Referring to the letter I had the honor to address to you lately, on the subject of brevets for services rendered by ordnance officers not in the field, I respectfully ask a reference to the Army Register for 1848, page 60, where it appears that not only one but many brevets were conferred during the war of 1812 for "meritorious services," and one especially for "meritorious service in Ordnance Department."

These services are essentially of a military character, and for their effi-

cient performance require an extent of military knowledge and talent far beyond what is necessary for the efficient use of the weapons of war, and of a much more scientific and varied character. I cannot believe that you are unwilling to do us justice, or that we shall appeal in vain for a due consideration of our labors and of the immense importance to the success of our arms derived therefrom.

Respectfully, your obedient servant,

To the PRESIDENT.

GEO. TALCOTT,
Colonel of Ordnance.

[Miscellaneous Letters, vol. 39, p. 275.]

ORDNANCE OFFICE,
Washington, July 29, 1848.

SIR: From the phraseology of the 5th section of the act, approved July 19, 1848, I am apprehensive that it may be construed to exclude the enlisted men of ordnance (many of whom have served faithfully, gallantly, and efficiently through the Mexican war) from the receipt of the three months' pay therein provided. Ordnance men are not *technically* known either as non-commissioned officers, musicians, or privates; although they constitute a portion of the regular military establishment, and are enlisted, clothed, armed, disciplined, and subject to the rules and articles of war, in like manner with all other soldiers of the Army. As it would be absurd to suppose that it was intended to exclude these men only, from the reward granted for services in which they participated equally with the rest of the Army, I request they may be included, in terms, by enactment. This may be done by construing the words "non-commissioned officers, musicians, and privates" (as used in the 5th section) to mean all enlisted men; or by a special clause to some act or joint resolution, granting three months' extra pay to the enlisted men of ordnance, who have served in Mexico during the war.

Very respectfully, &c.,

GEO. TALCOTT.
Colonel of Ordnance.

Hon. JNO. M. BOTTS,
Chairman Committee on Military Affairs.

[2 Y, 1848.]

EXECUTIVE CHAMBER,
Albany, August 1, 1848.

SIR: Your communication informing me of the number of arms due the State of New York from the general government has been duly received.

You will please deliver to General Jno. Stewart, the commissary general, at such places as he may designate, on account thereof the following: 500 hussar saddles, 500 hussar bridles, 500 hussar valises, 500 hussar pads and straps for valises, 500 hussar front plates, 500 hussar cruppers, 500 hussar halters, 200 wall tents and poles, 100 infantry tents and poles, 2 marquees and poles, 2 hospital tents and poles, 2 bell tents and poles.

Respectfully, your obedient servant,

JOHN YOUNG.

Col. GEORGE TALCOTT,
Ordnance Department.

[First Indorsement.]

ORDNANCE OFFICE,
September 21, 1848.

Respectfully laid before the Secretary of War. The Ordnance Department has never furnished horse equipments nor camp equipage to the States under the law of 1808 for arming the militia.

GEO. TALCOTT,
Colonel of Ordnance.

[Second Indorsement.]

The law for arming the militia is not considered as applying to such articles as are specified in the within requisition.

W. L. M.

NOVEMBER 13, 1848.

[130 W. D., 1848.]

ORDNANCE OFFICE,
Washington, August 10, 1848.

SIR: The percussion system having been adopted for all small arms by the proper authority, and as none are now made of any other kind, it is proposed to alter to percussion all flint-lock muskets that are of suitable quality. With this end in view inspections have been made of all the muskets in store at the several armories and arsenals, and the following statement shows their number and kind:

Percussion muskets now on hand.....	90,269
Flint-lock muskets made since 1831, destined to be altered to percussion	164,965
Flint-lock muskets made from 1821 to 1831, to be altered to percussion	160,374
Total	415,608

It is considered that this number of muskets deposited at the several arsenals, with those which will be added annually, may be safely relied upon for the defense of the country.

There are also third class flint-lock muskets deemed not suitable for alteration to percussion in consequence of their quality, which, although equal to the standard in use at the time of their fabrication, are below those made at later periods.

The number of this description is	151,908
There are also of a similar quality, but in some respects inferior, having been made at an earlier date	52,827
Also, certain other muskets taken out of those classed as good, but which require repair, chiefly new barrels	24,629
There remain also on hand of the fourth class, reported for sale some time since, the sales having been stopped during the war with Mexico	14,230
Total	243,594

There will also be not less than 20,000 muskets turned into store by the troops just discharged from service, most of them ruined and unfit for repair. I respectfully suggest that all the above-named muskets should be sold at auction after condemnation; but should it be deemed inexpedient to bring into market so large a number, then those first named on the above list, viz, 151,908, may be retained until a suitable time arrives for their disposal in like manner.

Very respectfully, your obedient servant,

GEO. TALCOTT,
*Colonel of Ordnance.*Hon. W. L. MARCY,
Secretary of War.

[131 W. D., 1848.]

ORDNANCE OFFICE,
Washington, August 15, 1848.

SIR: In connection with the report which I had the honor to submit to you under date of 10th instant, as to the number of percussion, and of first and second class flint-lock muskets now on hand, and which, in my opinion, are sufficient for all the probable wants of the country, and of the number on hand in addition to those of inferior quality, which might be sold with advantage to the public service, I now respectfully suggest that the necessary inspection be immediately commenced for determining, in the language of the act of March 3, 1825, what portion of this second description of muskets "appear to be damaged or otherwise unsuitable for the public service."

I propose that these inspections be made at the Springfield and Harper's Ferry Armories, by the officers in command of those armories. At Watervliet Arsenal, by the commanding officer; at Watertown and Kennebec Arsenals, by Lient. P. V. Hagner, of the Ordnance Department; at Allegheny Arsenal, by the commanding officer; at Saint Louis Arsenal, by the commanding officer; at Baton Rouge Arsenal, by the commanding officer; at Frankford and Washington Arsenals, by Capt. J. Lee, of the Ordnance Department; and such of the remainder as it may be found advisable to order to New York, previous to inspection, in consequence of the smallness of the number at any one place, be inspected at New York, by Capt. W. A. Thornton, Ordnance Department; and I further respectfully suggest that your orders be now given, that such as these inspectors report "damaged, or otherwise unsuitable for the public service," be sold at auction in the city of New York, in the manner directed by existing regulations.

It seems to me important that I should receive your orders, in this respect, now, to authorize me to give at least forty days' notice through the newspapers of the intended sale.

I am, sir, with great respect, your obedient servant,

GEO. TALCOTT,
Colonel of Ordnance.

Hon. W. L. MARCY,
Secretary of War.

[Indorsement.]

Approved, and direction to be immediately given to carry the recommendation into effect.

W. L. MARCY.

SALE OF ARMS.

In relation to the 4th and the 3d class of arms, the President requires the certificate of the officer designated to inspect them, bringing those to be sold within the description of the law of 1825.

Place of sale, New York.

He directs that the arms be inspected, before sale, by an officer to be designated for that purpose, and sold at a fair price. When sold, to be put up in quantities not exceeding one thousand, and if they command a price far below the valuation the sale is to be stopped.

Public notice of the time and place of sale to be given, and sale not to take place less than 50 days after notice. If necessary to inspect the arms again, to get the proper certificate to authorize the sale under the law, such inspection to be made immediately.

W. L. M.

The law requires the inspection should be by inspector-general or other officers. It may be a question whether master armorers be within the law. I would suggest that some officer be named for the inspection at Springfield, who may be assisted by the armorers.

To Col. TALCOTT.

W. L. M.

[Letters to W. D., vol. 9, p. 281.]

ORDNANCE OFFICE,
Washington, August 28, 1848.

SIR: In compliance with your directions of the 23d instant, I have the honor to report the names of the ordnance officers who have visited Europe, which are as follows: Maj. R. L. Baker, Capt. A. Mordecai, Capt. B. Huger, and Bvt. Second Lieut. I. Gorgas.

Captain Mordecai visited Europe in 1833, and Lieutenant Gorgas in 1845, both on leave of absence for twelve months, and traveled at their own cost. Major Baker, Captain Mordecai (second time), and Capt. B. Huger, accompanied by Maj. W. Wade, a practical founder, were sent to Europe in 1840 by Mr. Secretary Poinsett. They were absent about eight months. For the services performed by these officers, while absent, I respectfully refer to the report from this office accompanying the President's message of December 5, 1840, and to the report of the ordnance board of March 1, 1841, which will be found published as Senate Document No. 229, second session, 26th Congress.

The compensation allowed to these officers was the same pay and allowances which they received while sitting as a board in this city, viz, pay and emoluments allotted to their rank, and an extra pay of two dollars per day under a special appropriation of Congress, and an allowance of 10 cents a mile for expenses of transportation.

I am, sir, &c.,

GEO. TALCOTT,
Colonel of Ordnance.

Hon. W. L. MARCY,
Secretary of War.

[148 W. D., 1848.]

ORDNANCE OFFICE,
Washington, August 31, 1848.

SIR: I have the honor to submit an abstract of the recommendations of the ordnance board, which convened on the 19th of June last, and respectfully suggest the approval of the same.

I am, sir, very respectfully, your obedient servant,

GEO. TALCOTT,
Colonel of Ordnance.

Hon. W. L. MARCY,
Secretary of War.

[Indorsement.]

Approved:

W. L. MARCY,
Secretary of War.

WAR DEPARTMENT, August 31, 1848.

ABSTRACT OF THE RECOMMENDATIONS OF THE ORDNANCE BOARD AT
THE MEETING OF 19TH JUNE, 1848.

1. *On the propriety of using cast-steel instead of iron for rifle barrels.*

The cost of materials for a barrel of iron is about 72 cents; for a barrel of steel \$1.70. In the workmanship of steel barrels there is a saving which must nearly compensate for this greater cost of material. Boring steel barrels is less expensive than reaming iron ones, because the machines for drilling feed themselves and one man may attend to several. All the steel barrels nearly would pass inspection, and consequently no loss. Of iron barrels there is a very considerable loss in manufacturing.

From these circumstances it is believed that cast-steel barrels do not cost more than iron ones, but as a change would require new machines for boring, &c., an allowance as asked by Mr. Whitney on, say, 2,000 barrels, to complete his contract for iron barrels, might very justly be made.

The board would recommend the adoption of cast-steel barrels for rifles, which, from experiments, are shown to possess superior strength, smoothness, and stiffness to iron.

2. *Proof of cannon.*

The board recommend to use but one wad, and that over the shot, in proving iron cannon.

3. *32-pounder howitzer (bronze).*

The board recommend the adoption of the 32-pounder howitzer expressly for the heavy field batteries.

We have had a 12-pounder battery in the field during the last campaign, and from its efficiency there is no doubt a limited number of this caliber will always be required. The 32-pounder howitzer is the proper shell gun to accompany such batteries, as it requires the same carriage as the 12-pounder gun.

4. *Concentric and eccentric shells.*

The board after duly examining the report of experiments made by Major Wade, at Boston, fully concur in his opinion, that all projectiles should be as perfectly concentric as they can be made, and that the additional thickness around fuse hole of shells is advantageous to supply the weight of the metal removed by the hole, and that it is also very useful in assisting to retain the fuse in its position.

5. *Inspection of bronze artillery.*

The board recommend that the examination of the quality of the metal, its strength, density, &c., and the different tests proposed by Major Wade be applied to all bronze guns made for the service. The board also recommend the proposed increase of the sinking head, which should be at least three-fourths the weight of the finished gun; and that the diameters of the molds of neck of gun be increased.

6. *12-inch columbiad.*

They recommend that the 12-inch columbiad should be considered as an experimental gun. As their use must be very limited, it may be considered a special gun and carriage.

7. *Artillery harness.*

They recommend the following changes in artillery harness:

I. Substitute leather traces, as made at Watervliet Arsenal, with the small changes in the harness required to adapt them to it.

II. Substitute halter chains for the straps now used (links 0.2 inch diameter, common imported chain, with toggle, swivel, &c.).

BENJ. HUGER,

Captain and Recorder of the Board.

ORDNANCE OFFICE, August 31, 1848.

Approved. Respectfully submitted to the Secretary of War.

GEO. TALCOTT,

Colonel of Ordnance.

[150 W. D., 1848.]

ORDNANCE OFFICE,

Washington, September 2, 1848.

SIR: I deem it proper to purchase the right to use Gates's patent dies for cutting bolts, which has been lately brought into use at a number of the machine and engine shops at New York and Philadelphia. Major Baker and Captain Mordecai have tried the dies at their posts and found them very excellent, doing much more work and better in a given time than the ordinary die. Private shops have paid as much as \$200 each, and I propose to pay \$600 for all the arsenals and armories, with your sanction.

I am, sir, very respectfully, your obedient servant,

GEO. TALCOTT,

Colonel of Ordnance.

Hon. W. L. MARCY,
Secretary of War.

Approved.

W. L. M.

SEPTEMBER 2, 1848.

[173 W. D., 1848.]

ORDNANCE OFFICE,

Washington, September 30, 1848.

SIR: The relief of nearly all the officers of ordnance from service with the Army in the field renders it necessary to arrange them for duty at the different arsenals and depots.

I respectfully propose the inclosed assignment, embracing all the officers of the corps except one en route from Santa Fé. This distribution will enable me to discharge from service the acting military storekeepers at the Kennebec, the Detroit, and the Apalachicola Arsenals.

I am, sir, respectfully, your obedient servant,

GEO. TALCOTT,

Colonel of Ordnance.

I approve of the within except in relation to the stationing of a captain at Pikesville Arsenal.

W. L. MARCY.

OCTOBER 5, 1848.

[Inclosure.]

Armories, arsenals, and ordnance depots.

Stations.	Field officers.	Captains.	First lieutenants.	Second lieutenants.	Military storekeepers.
Ordnance Office	1	1	1		
Springfield Armory	1				1
Harper's Ferry Armory	1				1
Watervliet Arsenal	1	1	1	2	1
Allegheny Arsenal		1	1		1
Washington Arsenal		1	1		1
Fort Monroe Arsenal		1	1		
Saint Louis Arsenal	1		1		
New York Depot		1			
Baton Rouge Arsenal		1			
Watertown Arsenal					1
Frankford Arsenal		1		1	
Charleston Arsenal		1			
North Carolina Arsenal		1			
Kennebec Arsenal			1		
Mount Vernon Arsenal			1		
Detroit Arsenal			1		
Pikesville Arsenal		1			1
Augusta Arsenal		1			1
Little Rock Arsenal					1
Rome Arsenal					1
Champlain Arsenal					1
Apalachicola Arsenal					1
Missouri Depot					1
Saint Augustine Depot					1
Fort Leavenworth Depot					1
Inspection of armories and arsenals	1		1		
Special duty		2			
Military Academy				2	
On leave of absence for one year			1	1	
Total	6	13	11	6	15

* Paymasters.

GEORGE TALCOTT,
Colonel of Ordnance.

ORDNANCE OFFICE, September 30, 1848.

[170 W. D. 1848.]

ORDNANCE OFFICE,
Washington, October 4, 1848.

SIR: I applied to you on the 18th ultimo for leave of absence to Brevet Major Huger and Brevet First Lieutenant Stone, of ordnance, for one year, with permission to visit Europe, for the purpose of improvement in their profession and the gaining of general information. The leave, then asked for, was granted by Special Orders No. 90, to commence on the 1st instant.

There are several matters connected with the manufacture of arms and the preparation of military supplies, in which this department is immediately, and the country generally, interested, to which I desire particularly to direct the attention of these officers during their visit to Europe. Among these I may mention, as of greatest importance, the process of manufacturing gun-barrels by rolling, known to be in use in England, and understood to combine great economy with good quality of work, and the Belgian method of fabricating percussion caps for small-arms, understood to possess advantages over other methods, particularly in being less dangerous.

The English process of rolling gun-barrels, it is expected, would effect a saving in this work of 20 per cent. of the whole amount, which is upwards of 25,000 barrels annually at the national armories. Efforts were made to obtain a knowledge of this process (as will be seen by the inclosed correspondence) through our consul-general at London, more than a year ago, but without success.

The Belgian method of fabricating percussion caps was the subject of consideration by the ordnance board at their last session, and they expressed the opinion, recorded among their proceedings, "that it would be well worth the expense for the department to send a competent person or persons to examine the fabrication of percussion caps in Belgium. They should understand perfectly the machines and methods used with us. And if there are improvements or new methods of fabrication, or means to render it less dangerous, that we should obtain them." You will readily perceive that, in order to enable these officers to devote their time and give proper attention to these objects, as well as to insure them a proper reception abroad, they should go out, not as private individuals, seeking amusement and recreation, nor even as officers traveling by indulgence of their government; but as officers on duty, sent out by authority, for a special purpose, and having orders from their government to execute. I, therefore, respectfully submit to your consideration the propriety and expediency of sending them under orders, instead of on leave, feeling quite confident that the results of their observations will much more than compensate for the small additional allowances they would thereby receive; it being only the regular mileage.

I am sir, respectfully, your obedient servant,

GEO. TALCOTT,
Colonel of Ordnance.

Hon. WM. L. MARCY,
Secretary of War.

[Indorsement.]

Colonel Talcott may send out, under orders, one of the above officers* or any other officer, to acquire the information desired, but he cannot receive brevet pay.

W. L. M.

(OCTOBER 4, 1848.

[Extract from a letter to the United States consul-general at London.]

ORDNANCE OFFICE,
Washington, May 12, 1847.

SIR:

* * * * *

I am very desirous to obtain certain information of the process used in England (Birmingham), for manufacturing musket-barrels by rolling. Dr. Maynard, of this city, who passed some time at that place last year, engaged a Mr. Inshaw to furnish drawings and detailed information concerning the machinery and the whole process, but has been disappointed in getting what was expected; indeed no attention was paid to the subject, probably after Dr. Maynard left England. Herewith is a memorandum given me by Dr. Maynard, and should it be in your power to carry out the wishes of this department, I need not assure you that I shall feel under great obligations, as well as readily paying all charges.

I am, sir, &c.,

GEO. TALCOTT.
Lieutenant-Colonel of Ordnance.

Col. THOMAS ASPINWALL,
Consul-General, &c., London.

* Brevet Major Hagner was the officer selected. (See letter to him of October 9, 1848, herein, page 244.)

Memorandum referred to.

Mr. Inshaw was to procure full and complete working drawings of the machinery for rolling gun-barrels, and of the furnace or furnaces used in connection therewith; also, to procure samples of the pieces of iron used for barrels. One piece, showing the iron ready for the first process, and others showing the effect of each process afterward; one for each process. The drawings and samples to be accompanied with such directions and explanations as would make them easily and distinctly understood, and the whole he was to box up safely, and send per steamer of 19th September last, via Boston, directed thus: "To the Secretary of War of the United States, Washington." Payment was to have been made to him in Liverpool, directly after the arrival here of the box. Mr. Inshaw supposed the expense of the whole, including his own services, would be some ten or twelve pounds sterling—might be more or less; depending upon what he paid for the drawings, which were to be executed by another person. Mr. Inshaw's address is as follows: Mr. Inshaw, Engineer, Steam-Clock Tavern, Moreville street, Birmingham, England.

[Extract.]

CONSULATE OF THE UNITED STATES,
London, June 3, 1847.

SIR:

I have set on foot the inquiry you wished to be made respecting the manufacture of gun-barrels, and shall have great pleasure in fulfilling the desires of the department in relation to that subject, as detailed in your letter, and Dr. Maynard's memorandum. It is quite likely that Mr. Inshaw could not get the commission executed for £10 or £12. The drawings alone would probably cost more. I will endeavor to have the business done on as moderate terms as possible, and with all practicable dispatch.

I remain, sir, respectfully and most truly, your very obedient servant,

THOS. ASPINWALL.

Lieutenant-Colonel TALCOTT,
Ordnance, War Department, Washington.

[Letters to Ordnance Officers, vol. 10, p. 218.]

ORDNANCE OFFICE,
Washington, October 9, 1848.

SIR: By authority of the Secretary of War, granted to me to send an officer to Europe for the purpose of acquiring certain information which it is desirable for this department to possess, you are designated for that duty.

You will accordingly proceed, as soon as practicable, to England and thence to Belgium, which countries it will be necessary for you to visit for the attainment of the specific objects of your mission.

The accompanying copy of the letter to the Secretary of War, on which his orders in the case are indorsed, will inform you of the most important objects, to which your attention must be directed during your visit. Your observations and inquiries will not, however, be limited to these. On the contrary, it is expected that you will obtain as full information as practicable of the system of artillery and of the armament and equipment of troops of all arms in the countries you may visit, especially where they appear to possess any advantages over our own. Whilst, as an ordnance officer, your attention will be given particularly to objects pertaining to that department, you will not fail to acquire any other information which may be of utility or interest to other branches of the military service.

It is impossible to designate the particular places in each of the before-mentioned countries, which it will be necessary for you to visit, except Birmingham, in England, and Liège, in Belgium. But you will also visit such others as you may find necessary for the proper execution of your orders.

As the time of your absence must necessarily depend on the facilities you may meet with in accomplishing the objects of your visit, it cannot be specified, but it is the wish of the department that it should not exceed a year.

I am, sir, &c.,

GEO. TALCOTT,
Colonel of Ordnance.

Bvt. Maj. P. V. HAGNER,
Washington, D. C.

[Letters to Ordnance Officers, vol. 10, p. 219.]

ORDNANCE OFFICE,
Washington, October 9, 1848.

SIR: Some time having elapsed since the last regular inspection of the armories, arsenals, and ordnance depots, in consequence of the necessity of suspending this important duty during the Mexican war, it will be resumed with as little delay as possible. You will, therefore, visit and carefully and minutely inspect each of these places, commencing with those south of this city and taking them in the order of your route.

In making your inspections you will attend particularly to the several points of duty enjoined by articles 15, 16, and 100, Ordnance Regulations. In addition to the inventory, required by the last article to be forwarded to this office, you will send a separate list of condemned stores prepared according to Form No. 10.

Besides the general duties required by the regulations, there are other matters of which it is important that this department should be well informed through your inspection reports. Among these the following are mentioned, viz:

The necessity for all matter which the commanding officers intend to include in their annual estimates; your opinion of their plans for new buildings, or for repairing, enlarging, or altering those already erected, and as to the proper sites for any additional ones that may be necessary.

Whether any *system* of improvement, in the way of additional buildings, machinery, fences, walls, or grounds at each armory, arsenal, or depot, should be adopted.

What is the relative importance of the different proposed improvements at the same arsenal, and in what order should they be undertaken?

The same for the different ordnance posts in relation to each other.

What improvements appear essential to be undertaken at once, and what can be postponed with the least inconvenience; and any other information on this subject which you may deem useful to the department, to enable it to revise and modify the annual estimates from the arsenals, so as to combine a proper degree of economy with the most efficient system of operations.

Whether the enlistments and musters are made as required by regulations? (See articles 61 and 62.)

Whether any changes are advisable at any of the posts in the number or grades of the enlisted men, and to what extent, if at all, it would be expedient to substitute their services for those of hired men?

At what arsenals does it appear to be necessary to employ a hired master workmen and clerks, and where may enlisted men be properly employed in those capacities?

Should there be a general rule adopted for the issue of uniform clothing, or should it be left to the discretion of the different commanding officers? A correct opinion on this subject cannot probably be formed until all the posts have been visited.

Whether the hired and enlisted men are properly employed, and all property appertaining to the department is used exclusively for public purposes? (See article 60.)

Whether the ordnance and ordnance stores are neatly arranged in store, and so kept as to secure their safety and preservation? (See Ordnance Manual on this subject.)

Whether the books and papers required by the regulations are properly kept at each post? (See articles 150 and 151.) A list of prices of the principal ordnance and ordnance stores is inclosed, in order that you may furnish such information as may be necessary to enable officers to prepare the annual inventory required by regulations.

In addition to the foregoing specified subjects, it is of course expected that you will fully examine and report upon all matters which you may deem of interest connected with the operations, and the present and prospective wants of their respective posts, which you may visit; with all of which it is essential that you should take full time to make yourself well acquainted.

I am, sir, &c.,

GEO. TALCOTT,
Colonel of Ordnance.

Lieut. Col. H. K. CRAIG,
*Inspector of Armories and Arsenals,
Washington, D. C.*

[181 A, 1848.]

WAR DEPARTMENT,
ADJUTANT-GENERAL'S OFFICE,
Washington, October 10, 1848.

CAPTAIN: By authority of the Secretary of War you are hereby assigned to the duties of Acting Judge Advocate of the Army, and will, for the time being, be considered as attached to the Adjutant General's Office, War Department, where the original proceedings of all general courts-martial are deposited and entered. (See 90th Article of War, and paragraph 896, Army Regulations.

The stated duties of the Acting Judge Advocate will be the examination of the proceedings of all courts-martial, to see that they are regular and in conformity to the law, and if otherwise, to submit a written report, pointing out the defects, &c. Such reports will be recorded in the report book.

The names of all persons tried by courts-martial, or whose cases may be submitted to courts of inquiry, will be carefully recorded in the books kept for such purpose; and the original proceedings will be indorsed, numbered, and registered according to the practice heretofore established, &c.

The Acting Judge Advocate is occasionally charged with other official business, when the duties of the office may require his aid.

Respectfully,

R. JONES,
Adjutant-General.

Capt. JOHN F. LEE,
Ordnance Department, Washington, D. C.

ORDNANCE OFFICE,
Washington, November 14, 1848.

SIR: The operations of this department during the last fiscal year, which are stated in this report in the usual detail, have been conducted, it is believed, with uniform correctness and dispatch, and with as much regard to economy as was consistent with the superior quality and abundance of the arms, ammunition, and other supplies which it has furnished. The increased amount of duties devolving on all the branches of the military service during the continuance of the Mexican war has scarcely been at all abated, as regards this department, since its termination. The collection, arrangement, repairs, and preservation of the ordnance and ordnance stores brought back from Mexico impose as heavy duties as were originally required for their preparation and issue from the arsenals; duties which call for much industry and attention on the part of our officers and men, and which, I have every reason to believe, have been properly discharged; no exception thereto has come to my knowledge.

The test of practical experience, always the surest and best guide, may now be appealed to, in favor of the superior excellence of our armament for each description of troops. It may be confidently asserted that it is not surpassed by that of any nation; and although the bravery and skill of the *personnel* of our armies were, undoubtedly, the first and chief source of our late successes, the excellence of the *material* must also be taken into account in reckoning the causes which produced them. This department has not failed to take advantage of the opportunity which actual service in the field has presented for ascertaining and adopting all the improvements, and of correcting such defects as were therein made apparent.

Whilst skill in the use of small arms is almost universal in our country, a knowledge of the proper management of artillery is confined to but a small portion of our Regular Army, and, perhaps, a few volunteer companies. It is to be hoped that this knowledge, the theory of which forms an important part of the education received at the Military Academy, may not be suffered to decline for the want of such practical schools as can be furnished by the few companies authorized to be armed and equipped as light artillery. I consider it a matter of great importance to the country, in a military point of view, that all these companies should be so armed, equipped, and supplied as to enable them to keep up a perfect knowledge of all the maneuvers and details of service peculiar to their appropriate arm.

Although the state of war has caused a partial suspension of some of the branches of work in this department, it has not materially interfered with its operations in supplying the State governments under the law for "arming and equipping the whole body of the militia of the United States." The supplies thus furnished will be particularly stated under that head in the detailed statement of the principal operations of the department during the past fiscal year, which are now taken up in the usual order.

FUNDS.

Amount, as per last year's report, undrawn from the Treasury on the 1st July, 1847	\$426,207 07
In hands of disbursing officers, same date	98,540 53
Amount of appropriations for the fiscal year 1848, including the fixed annual appropriation for arming and equipping the militia	1,229,859 00
Received, during the year, for sales, rents, and for damages to arms in the hands of troops	38,222 83
	<hr/> 1,792,829 43
Amount of expenditures during the year	1,363,120 43
In hands of disbursing officers, June 30, 1848	87,391 64
Remaining in Treasury, undrawn, June 30, 1848	342,317 36
	<hr/> 1,792,829 43

ARMAMENT OF FORTIFICATIONS.

There has been expended from the appropriation for this object, during the fiscal year, the sum of \$93,327.14.

The principal articles, procured by purchase and fabrication at the arsenals, are the following, viz: 20 24 pounder iron cannon; 25 24-pounder howitzers, for flank defense; 60 casemate carriages, complete; 78 casemate upper carriages; 36 barbette carriages, complete; 4 barbette carriages, upper; 32,897 grape-shot, of different calibers; 600 percussion cannon locks; 71,702 cubic feet of gun-carriage timber.

The fortifications have received, during the past year, additions to their armaments of only a few flank howitzers and carriages; these, with repairs, painting, and other work requisite to preserve them from decay, constitute all that has been done under this head at the forts.

Since the commencement of the Mexican war, operations in this branch of work have been almost entirely suspended in consequence of the more pressing demands for arms, ammunition, and other ordnance supplies for troops in the field. The estimates and appropriations have been correspondingly reduced; they have been limited to the amount necessary for meeting engagements already made, principally for supplies of gun-carriage timber, for finishing work in hand, and for the necessary repairs and preservation of the armament at the forts. This department will be prepared for a full resumption of work on this account by the beginning of the next fiscal year; the estimate, therefore, although larger than usual, is the *least* sum that can be advantageously applied to this important object with our present means for construction; with any less amount the use of much of our valuable machinery, tools, workshops, &c., will be lost. The proper employment of these and the resumption of work at the foundries, which has been almost entirely discontinued for some time past, will furnish occasion for the profitable expenditure of the entire amount of the estimate.

ORDNANCE, ORDNANCE STORES, AND SUPPLIES.

The expenditures from the appropriation on this account, during the past fiscal year, amount to \$392,691.07.

The principal articles procured by purchase and fabrication at the arsenals are as follows, viz: 42 bronze field cannon, different calibers; 107 field gun carriages; 6 mountain howitzer carriages; 16 12-pounder block-house carriages; 70 caissons; 65 traveling forges; 17 battery wagons; 4 mortar wagons; 789 sets of artillery harness for two horses; 40 India-rubber powder bags; 208 India-rubber tarpaulins; 1,531 6-pounder cannon balls; 4,968 shells of different calibers; 9,906 spherical case shot, of different calibers; 66,633 pounds of canister shot, of different

calibers; 386,925 pounds of pig-lead; 27,434 rounds of ammunition, for field cannon, of different calibers; 355 strapped shells; 4,404,300 cartridges for small-arms; 14,288,431 percussion caps; 82,711 pounds laboratory paper; 433,144 pounds musket, rifle, and cannon powder; 300 percussion rifles; 300 carbines; 2,250 percussion pistols; 1,260 Colt's patent pistols; 4 rifle wall-pieces; 2,860 cavalry and horse-artillery sabers; 2,692 non-commissioned officers', musicians', and artillery swords; 14,850 complete sets of accouterments for cavalry, infantry, and riflemen; 6,444 cartridge boxes; 5,495 cartridge-box belts; 2,811 bayonet scabbards, with frogs; 3,182 musket and carbine slings; 291 brushes and picks; 216 rifle pouches; 4,889 belts of various kinds; 800 copper rifle flasks; 188 carbine swivels; 1,560 pairs of holsters and caps; 12,952 cubic feet of gun-carriage timber.

NATIONAL ARMORIES.

The expenditures at the armories, during the last fiscal year, have been as follows, viz :

	Harper's Ferry.	Springfield.	Total.
For the manufacture of arms, appendages, tools, and machinery, and the purchase of materials for the same.....	\$183,264 55	\$161,632 92	\$344,897 47
For repairs and improvements, including lands, buildings, dams, &c.....	75,269 63	65,911 29	141,180 92
Total.....	258,534 18	227,544 21	486,078 39

There have been made during the same period at Harper's Ferry Armory 11,000 percussion muskets and 2,802 percussion rifles, with 49,369 appendages for the same, consisting of ball-screws, wipers, screw-drivers, bullet molds, spring vices, extra cones, and cone wrenches. There have been made during the same time at Springfield Armory 15,017 percussion muskets and 957 musketoons for sappers, cavalry, and artillery, with 50,670 appendages for the same, consisting of like articles to those mentioned above. The statements of the commanding officers of these armories, which accompany this report, are referred to for a more particular account of the arms, &c., manufactured, and of all other work done at them, respectively.

The next year's estimate for the manufacture of arms contains the amount usually appropriated for that purpose. That for repairs, improvements, and new machinery, includes objects requisite for carrying on operations at these establishments in a proper manner, and for keeping pace with the advances and improvements which are constantly being made in all branches of manufacture. These objects are specially stated in the estimates under that head, and the reasons for each one are given therein in detail.

ARMING AND EQUIPPING THE MILITIA.

The expenditures during the last fiscal year, from the standing appropriation for this object, amount to \$305,755.60. The principal articles obtained on this account by purchase and fabrication at the arsenals are as follows, viz : 32 6-pounder bronze cannon; 38 6-pounder carriages; 22 caissons; 48 sets of artillery harness for two horses; 800 muskets; 7,400 percussion rifles; 900 carbines; 3,002 percussion pistols; 2,780 cavalry and artillery sabers; 1,008 non-commissioned officers' swords; 12,989 sets of accouterments for cavalry, infantry, and riflemen; 5,389 cartridge boxes; 9,430 bayonet scabbards, with frogs; 12,271 belts of various kinds; 705 musket and carbine slings; 7,331 brushes and picks;

100 rifle pouches; 310 carbine swivels; 357 saber knots; 11,500 cubic feet of gun-carriage timber.

The apportionment of arms to each State and Territory, made under the regulations established in conformity with the act of 1838, according to the number of effective militia included in the latest returns from each, is shown in statement A, and the issues to the amount of the apportionment in statement B, both hereto appended.

Statement C, also annexed, exhibits the issues to United States troops during the year.

ARSENALS AND DEPOTS.

The expenditures from the appropriation for "arsenals," during the past fiscal year, amount to \$123,574.56.

This appropriation is always made on detailed estimates, in which each object to be effected is specially designated. The expenditures therefrom have been exclusively applied to the accomplishment of these objects. They include all additions and improvements at the arsenals of a permanent character; also repairs and alterations of, and additions to, buildings already erected and the construction of new ones. The statements from the commanding officers of arsenals which accompany this report are referred to for a more particular account of the work done under this head.

The average number of enlisted ordnance men during the year was 575; at the end of the year, 30th June, 1848, there were 587. These men are of three classes, viz, mechanics, artificers, and laborers. The first includes carriage-makers, blacksmiths, and armorers; the second, men skilled in the preparation of ammunition and in other duties of the laboratory, and clerks at the arsenals; and the third, those employed in guard and police duties and in performing miscellaneous work. The enlisted force in service at the end of the year was distributed as follows, viz: at the arsenals and depots in the United States, 427; at the depots in Mexico, 32; and with the army in Mexico, 59 in the siege train, and 69 in the howitzer and rocket company. These last have since been discharged. The men have all been usefully employed; and I take pride in referring to the reports of their gallantry on all occasions where there has been an opportunity for its display.

The officers of the corps have all been actively and usefully employed. While those who had the good fortune to participate in the glorious victories of the armies in Mexico have received the reward of advancement in rank, it is hoped that the less brilliant, though not less useful services of others, who were kept away from such opportunities for distinction, may yet meet with similar rewards.

GEO. TALCOTT,
Colonel of Ordnance.

Hon. WM. L. MARCY,
Secretary of War.

Statement of principal operations at the arsenals during the year ended June 30, 1848.

* * * * *

WASHINGTON ARSENAL.

MACHINERY.

A new machine for making percussion caps, the invention of George Wright, a enlisted mechanic of my company, has been constructed at the arsenal and put in operation.

Two machines have been heretofore used for making caps—one for forming the cap, and the other for charging it; the new machine combines in a very ingenious manner the operations of these two, so that, by keeping it supplied with copper in sheets and with percussion powder, finished caps are produced, ready for being varnished.

The varnishing could also be done by the machine (instead of by hand, as at present), but that the varnish must be left a short time to dry, before the cap is thrown out.

The operation of this machine has been subject to interruptions such as all new and complicated contrivances are liable to, until experience has suggested the necessary arrangements for perfecting them; but I think that the trial has satisfactorily shown the practicability of this method of making percussion caps, and I consider this invention to be far superior to any other which I am acquainted with for that purpose.

The machine is capable of turning out about 36,000 caps in ten hours.

[52 W. D., 1848.]

ORDNANCE OFFICE,
Washington, November 27, 1848.

SIR: I understand that an application may be made to station a company of artillery at the Charleston Arsenal, probably by the transfer of one of the companies now at Fort Moultrie.

I beg leave to state, in anticipation of such an application, that there are not quarters at the arsenal to accommodate a company of artillery in addition to the garrison of enlisted ordnance men at that post; and that the presence of the company is not necessary as a *guard* for the arsenal, the enlisted force permanently stationed there being sufficient for the purpose.

By General Orders No. 49, two companies were assigned to Charleston Harbor, and if both be not requisite for Fort Moultrie, one of them may be very advantageously assigned to Castle Pinckney, now, I understand, without a garrison, and with abundant quarters for a company, in complete repair. The castle has, moreover, a magazine of powder, and its complete armament, both casemate and barbette, in position, for the proper care and preservation of which its occupation by a garrison is highly desirable.

In view of these facts I trust that the stationing of a company at Charleston Arsenal, where it is not wanted for any public purpose, and cannot be posted without serious inconvenience to the appropriate operations of the establishment, will not be sanctioned.

Respectfully, your obedient servant,

GEO. TALCOTT,
Colonel of Ordnance.

Hon. W. L. MARCY,
Secretary of War.

[First indorsement.]

Referred to Adjutant General.

W. L. M.

[Second indorsement.]

I am not aware of any such intention respecting the troops in Charleston Harbor; but I think it would have been best if the Colonel of Ordnance had omitted any recommendation touching the occupation of

Castle Pinckney, as I have supposed it is far from being a desirable place for troops in time of peace.

Respectfully referred to Major General Scott, &c.

R. JONES,
Adjutant General.

FEBRUARY 15.

[210 W. D., 1848.]

ORDNANCE OFFICE,
Washington, December 4, 1848.

SIR: It is deemed necessary to have an early meeting of the Ordnance Board to examine and consider the subjects stated in the inclosed memorandum. As some of the most important points for the consideration of the Board relate exclusively to small-arms, it is highly desirable to associate the commandants of the national armories with the other officers composing the Board, during this session. I request your authority for convening the Board, thus organized, on the 12th instant.

Respectfully, your obedient servant,

GEO. TALCOTT,
Colonel of Ordnance.

Hon. W. L. MARCY,
Secretary of War.

[Indorsement.]

Approved:

W. L. MARCY,
Secretary of War.

WAR DEPARTMENT,
December 4, 1848.

Memorandum of subjects to be presented for the consideration of the Ordnance Board at its next meeting:

1. Barbette carriages are to be arranged for the 8-inch and 10-inch columbiads, on the plan of that made at Watertown for the 12-inch columbiad, according to the recommendation of the Board at its last session.

2. Mortar-beds are to be contrived for the 10-inch and 13-inch heavy mortars.

3. The whole subject of fuses for shells is to be revised, with a view to the arrangement of fuses for shells for field-service howitzers; for spherical case shot for field guns and howitzers; for shells for garrison guns; for shells for seacoast howitzers; for shells for 8-inch siege howitzers; for shells for columbiads; for shells for mortars.

4. What modifications the shells may require to adapt them to the fuses which may be adopted for each.

5. The dimensions of sabots and the manner of strapping shells for guns, seacoast howitzers and columbiads.

6. Is it not desirable to have the shells and canisters for the 8-inch siege howitzers strapped to sabots in order to facilitate the loading of the howitzer in cases where it is not fired over the heads of our own troops, retaining the present mode of loading with shell-tongs in such cases?

7. To attach the cartridges for the field howitzers, large as well as small charges, to a cartridge block in order to make cartridge more secure.

8. What part of the present equipment and fire-works for field bat-

teries may be dispensed with by depending on locks, percussion primers, and friction tubes for firing the charge?

9. What modifications are required in the proportions of several kinds of ammunition for field batteries and mountain howitzers?

10. Modification in the assignment of battery wagons and forges to field batteries and depots in the field.

11. Changes in the lists of tools and stores for battery wagons and forges, and in the manner of packing them in detail.

12. Changes in the manner of packing ammunition chests to correspond with any that may be adopted in the ammunition; also, manner of storing small stores in ammunition chests.

13. Alteration of flint-lock arms to percussion.

14. Applying sights to muskets.

[226 W. D., 1848.]

ORDNANCE OFFICE,
Washington, December 8, 1848.

SIR: I respectfully submit herewith two letters from Captain Mordecai, respecting a pension for the widow of Adam Alburger. From the facts therein stated it appears that Alburger was employed in the service of the United States, at ordinary wages, as a pyrotechnist; that he was engaged in the dangerous business of making percussion powder, and that while so employed in the public service he lost his life by an accident to which the nature of his duties peculiarly exposed him. There is no existing law making provision for widows in such cases, nor am I aware of any precedent; but this seems to me to be a case of such manifest equity as to warrant the department, in whose service the man was employed, to aid his widow in obtaining from the government a moderate pension, and to call upon its officers not to leave the matter to her individual exertions alone. I, therefore, recommend her case to your consideration, in the hope that an application to Congress in her behalf may be made with your sanction and recommendation.

Respectfully, your obedient servant,

GEO. TALCOTT,
Colonel of Ordnance.

Hon. W. L. MARCY,
Secretary of War.

[Indorsement.]

I cannot, as Secretary of War, recommend to Congress any special object of bounty, unless already by legislation they have recognized in principle, similar cases, and I do not understand this case to be within the equity of existing pension laws.

Pensions in the military service are perhaps given more on account of the *right* which the government exercises of exposing its officers and enlisted men to the most imminent hazards or even certain death. This is not the case with hired men, who can quit the service when they please, and if engaged in hazardous employment it is at their own option and with proportionate wages.

W. L. MARCY,
Secretary of War.

WAR DEPARTMENT, *December 16, 1848.*

[Inclosure.]

WASHINGTON ARSENAL, *August 16, 1848.*

SIR: Mr. Alburger, who was wounded by the accidental explosion of percussion powder on the 14th instant, died yesterday afternoon, having survived the accident more than thirty hours.

During a great part of that time he retained his senses (although suffering from a fatal wound on the head), and he could hear and speak. He described the explosion as having been caused by the falling or slipping of a jar of percussion powder (containing 1 pound) from his hands as he was crossing the room with it, probably to put it away in the magazine. There is no mark on the floor, as of the explosion of fulminating powder, but an oaken workbench, about 2½ inches thick, is broken and split, evidently from that cause. The jar may have fallen on this bench, though the effect on the bench may have been equally produced by the explosion of other dried powder standing ready to be pulverized. There must have been a considerable quantity of fulminate, in different stages of preparation and of dryness, in the room adjoining the one in which Mr. Alburger was found: it was in that room evidently, that the principal explosion occurred, the room in which he was, being comparatively little injured. Mr. Alburger was a sober, steady, and very careful man, highly intelligent and very skillful in his business as a pyrotechnist; he was also a man of excellent moral character, and personally well esteemed by the officers and others at the arsenal.

He had no children, but he leaves a widow for whom I hope you will take the earliest opportunity of demanding a suitable pension from the government.

Respectfully, your obedient servant,

A. MORDECAI,
Captain of Ordnance.

Col. GEO. TALCOTT,
Ordnance Department.

[Inclosure.]

WASHINGTON ARSENAL, *December 6, 1848.*

SIR: I beg leave to call your attention to my letter of the 16th August last, on the subject of obtaining a pension for the widow of Mr. Adam Alburger, who lost his life by an explosion in the laboratory at this arsenal, whilst he was engaged in the preparation of fulminating mercury for making percussion caps. Mr. Alburger was employed as a master pyrotechnist at the arsenal; he was a skillful and a careful manipulator, and the explosion which caused his death was occasioned by one of those accidents which are almost inevitable in the dangerous business of making percussion powder; it was caused by a jar of powder slipping out of his hand and exploding on striking the floor.

The propriety of making a suitable provision for the families of men who are employed in such occupations by the government is so obvious, that I think it can only be necessary to present the subject through the proper channels to Congress to obtain a favorable action on it. Mr. Alburger having been a hired workman, a special act will be required in this case. He left a widow (Emily Alburger), without children, who ought to receive a pension from the day of his death, August 15, 1848. The amount of the pension will be regulated, I suppose, by precedents in such cases, but it may be proper to state that, at the time of his death, Mr. Alburger was receiving two dollars a day equivalent to about fifty dollars a month.

Eagerly recommending the subject to your attention and to that of the Hon. Secretary of War,

I am, respectfully, your obedient servant,

A. MORDECAI,
Captain of Ordnance.

Col. GEO. TALCOTT,
Ordnance Department.

[223 W. D., 1848.]

ORDNANCE OFFICE,
Washington, December 14, 1848.

SIR: The practice in regard to the inspection of contract arms, which has heretofore prevailed, is found by experience to be attended with much unnecessary expense and inconvenience, which it is desirable to remedy.

It has been customary to designate at this office, certain of the assistant armorers at the national armories, to make inspections at the private manufactories, who claim to hold their appointments permanently.

This method restricts the inspecting officer of the contract service to the employment of a limited number of persons to perform this duty, no matter how many and how pressing may be the demands of the contractors upon him.

The number of inspectors requisite for this service is constantly changing, according to the state of forwardness of the contractors' work, it being requisite to have in employment sometimes only one or two, and at others five times as many. To keep the whole number that may be required at any one time in permanent employment, would be an unnecessary expense. All the work to be done can be performed as well by workmen detailed from the national armories, from time to time in such numbers as the service may require; any number of men that may be wanted, fully competent to the performance of this duty, can be obtained at the armories, and the service is sufficiently desirable to be held out as a reward for those who exhibit most skill, industry, and attention.

I therefore respectfully recommend that the appointments now held by the designation of this office, be annulled from the last of this month, and that the armorers to be employed on this service be detailed from the national armories by the inspector of contract arms, as they may be from time to time required, their compensation, while so employed, to be a fair per diem allowance, with the mileage authorized by regulations.

Respectfully, your obedient servant,

GEO. TALCOTT,
Colonel of Ordnance.

Hon. W. L. MARCY,
Secretary of War.

[Inclosure.]

UNITED STATES ARMY,
Springfield, September 23, 1848.

SIR: On the 18th instant the Secretary of War visited this post, and, in compliance with your instructions, I called his attention to the compensation made to workmen detailed from this armory to aid the inspector of contract arms in the performance of his duties.

My correspondence with the department was laid before him, and the laws and regulations bearing upon the subject brought to his notice. After examining these, he concluded to postpone his final decision of the question till after his return to Washington.

If an allowance be made to the so-called "contract inspectors," to cover their extra expenses, with what justice can a similar allowance be denied to other workmen sent abroad from the armories on public duty or to Captain Thornton? If made to the former only it would place contract and armory inspectors on very unequal terms of compensation, and, I am apprehensive, would lead to much discontent.

In order to obviate this, and disembarass the whole subject of the many difficulties in which it has been involved by conflicting decisions and opinions, I would respectfully recommend that the services of the contract inspectors, as such, be dispensed with from the 31st of October next; that the appointment of Messrs. Patch, Bragg, Hawkins, and Harris be annulled from the above date, and that the compensation to those who may from time to time be detailed from the armories for contract service, be fixed at three dollars (\$3.00) per diem while actually employed, besides the regulation allowance of eight (8) cents per mile when traveling under orders.

On these terms the above-named individuals might be continued on this duty, should they be so inclined, and I consider the proposed allowance an ample remuneration for their services.

The papers inclosed in your letter of the 16th instant are herewith returned.

Very respectfully, I am, sir, your obedient servant,

JAS. W. RIPLEY,
Major Ordnance, Commanding.

Col. GEORGE TALCOTT, U. S. A.,
Ordnance Office, Washington, D. C.

[Indorsement.]

Respectfully submitted to the Secretary of War. I fully concur with Major Ripley, and suggest that all the appointments of inspectors be annulled; that a regulation be adopted giving authority for the pay and mileage of such assistants as may be designated to aid the inspector of contract arms in accordance with article 120, Ordnance Regulations.

GEO. TALCOTT,
Colonel of Ordnance.

[Indorsement.]

Approved.

W. L. MARCY,
Secretary of War.

WAR DEPARTMENT, *December 14, 1848.*

[Letters to Ordnance Officers, vol. 10, p. 291.]

ORDNANCE OFFICE,
Washington, December 21, 1848.

SIR: Your letter of 11th instant, covering a requisition from Lieutenant Dearborn and one from Captain Bainbridge, has been received. As regards the first, an order has been given to cover the issue; as regards the latter, it appears that you have made the issue without an order from any quarter. General Brooke and General Taylor both approve the requisition, but both rightly abstain from ordering the issue. Several requisitions have lately been received from you on which issues have been made by order of General Taylor. The practice was right during the war, but with the return of peace it becomes necessary to maintain the integrity of the ordnance regulations, and the officers of the corps are confidently relied upon for aid in the matter. The requisitions, after being approved, should be sent here for action. As regards the issue of the bright varnish to Captain Bainbridge, there are serious objections of another character. Bright varnish should never be used upon gun carriages, as it unfits the paint to receive another coat hereafter. If every officer is allowed to follow his own ideas on the management of carriages in a fort we shall be involved in every species of difficulty; further, bright varnish, as I understand the term, is rosin varnish, used on ship-board, and is not an article of supply under the head of ordnance stores. If used upon gun carriages they must be well scraped before a coat of paint can be applied hereafter.

I am, sir, &c.,

GEO. TALCOTT,
Colonel of Ordnance.

Capt. R. H. K. WHITELEY,
Baton Rouge Arsenal.

[237 W. D., 1848.]

ORDNANCE OFFICE,
Washington, December 22, 1848.

SIR: I have the honor to transmit herewith two reports from the Ordnance Board, now in session, in relation to Colt's and Wesson's revolving pistols.

I am, sir, very respectfully, your obedient servant,

GEO. TALCOTT,
Colonel of Ordnance.

Hon. W. L. MARCY,
Secretary of War.

[Indorsement.]

Colonel Talcott will furnish Mr. Wesson with copies of the within reports. Mr. Colt has already been furnished with them.

By order of the Secretary of War.

A. CAMPBELL,
Chief Clerk.

W. D., *December 23d.*

[Inclosure.]

ORDNANCE BOARD, *December 21, 1848.*

Agreeably to the instructions of the Secretary of War the Board examined such revolving pistols as were offered to them. Mr. Colt presented one of his patent revolvers. This Board had previously examined and made a report on Mr. Colt's rifle in 1841. That report contains their objection to repeating arms for the service of troops. This capacity of continuous fire is an advantage which they consider as greatly over-rated.

In special cases such a weapon may be advantageous, but it will be found that this will be the case with individuals, not of large bodies. In comparing the pistols now offered with the carbine and rifle previously examined, the Board find that the construction has been simplified and improved. The pistol now offered has a shorter cylinder and is used with a less charge than those made for the mounted riflemen, and therefore would not be as liable to burst. For such special service as this arm may be deemed suitable for, and for personal defense, the pistol now offered appears to this Board better suited than the arms of the same inventor that have been examined and reported on heretofore; but they desire to reassert here their previous opinion that these repeating arms are neither suitable nor safe for the armament of troops.

All which is respectfully submitted by the Board.

BENJ. HUGER,
Captain, &c., &c., Recorder.

ORDNANCE BOARD,
Washington December 21, 1848.

Agreeably to the instructions of the Secretary of War the Board have examined such revolving pistols as were offered to them. Mr. Wesson presented a revolving pistol. This arm has a revolving cylinder containing five charges, which by the operation of cocking presents a charged chamber to the opening of the barrel. The manner in which the cylinder is made to revolve is different from the mechanism used in others, and it is particularly for this method of causing it to revolve that Mr. Wesson claims its superiority over other arms of this kind. This motion is produced by two beveled wheels, duly proportioned, which are acted upon by the tumbler attached to the hammer. This arrangement of the lock has the advantage of allowing the arm to be better shaped and balanced; the stock being very similar to that of the service pistol. Whether the mechanism of the arm would endure in service can only be determined by trial in service. Even if one or two pistols endured a high number of fires, it would not be at all conclusive that of a large number there would not be many failures when they came to be used on a large scale. Other parts in the construction of the arm Mr. Wesson claims as improvements, viz: Attaching the barrel to the stock by a strap. The lock being completely covered and protected from the escape of the gas from the charge. The revolving part not being liable to be clogged by fragments of caps. The Board are of opinion that five chambers (the number this has) is as many as a cylinder of its diameter should have to preserve the necessary strength, otherwise it is very liable to burst, and the caliber they consider as large as a pistol can have without making it too heavy. This arm offered by Mr. Wesson is well constructed and for such special service as such arms may be deemed suitable for, and for personal defense it may answer as well as any other, although this Board think it likely that some of the smaller parts of its mechanism will require modifications to render them durable. They are also of opinion that this particular pattern of revolving arms does not obviate the objections expressed by them in their previous reports—"that repeating arms are neither safe nor suitable for the armament of troops."

All of which is respectfully submitted by the Board.

BENJ. HUGER,
Captain, &c., &c., Recorder.

[Miscellaneous Letters, vol. 39, p. 512.]

ORDNANCE OFFICE,
Washington, December 26, 1848.

SIR: Your letter of 23d instant, inclosing a copy of one from General Taylor, has been received. It is not in my power to comply with your request to order muskets, rifles, and carbines of your fabrication for trial by a "board of ordnance officers." The Secretary of War alone possesses such power. As breech-loading arms have fallen into disrepute of late years, I do not consider it probable that those of your construction will be found an exception whenever a trial is made.

I am, sir, &c.,

GEO. TALCOTT,
Colonel of Ordnance.

WM. W. HUBBELL, Esq., Philadelphia.

[24 W., 1849.]

BATON ROUGE ARSENAL, LA.,
January 2, 1849.

COLONEL: I have the honor to acknowledge the receipt of your letter dated December 21. 1848. It came to hand yesterday morning. Immediately on its receipt I took the duplicate of the requisition transmitted with my letter of the 11th ultimo over to the office headquarters, western division, asked the intention in sending that paper to me, and an expression of that intention on its face. This was at once given, and I have now the honor herewith to forward it. Please notice over the signature of General Brooke, "for *final action*," and again, it is signed by an A. D. C., showing the absence of the assistant adjutant-general, and the omission of the usual form of order entirely accidental.

When the first of these requisitions reached headquarters western division, Colonel Bliss called with it at my office, and all I could say and do for the integrity of the ordnance regulations was done at that meeting. On one of these requisitions, transmitted early in October, please observe an expression of the authority claimed for division headquarters to order issues of ordnance stores. Jealous as I am for the rights of my department, would contention have benefited those rights? Regarding obedience as the soul of family, civil, and military government, could I do more than obey the order and advise you of the facts? They have all the light on the subject, and it does seem to me the corrective should come from the Adjutant-General's Office.

In reference to the requisition, I beg leave to call your attention to the column of remarks, "For varnishing carriages and chassis in flank defense." When I last visited Fort Pike no such carriages were there, but some months afterwards I noticed peculiar carriages for the flank defenses of Fort Jackson, and was informed by Captain Barnard that they were sent there by Colonel Totten from Fort Adams. They are not painted, but polished and varnished, showing distinctly the grain of the timber. I infer similar carriages have been sent to Fort Pike, and to renew the varnish is the object of this requisition.

In conclusion I do most respectfully remark, groundless suspicion is harder to be borne than merited rebuke.

I am, sir, very respectfully, your obedient servant,

R. H. K. WHITELEY,
Captain of Ordnance, Commanding Post.

To Col. GEORGE TALCOTT,
Commanding Ordnance Corps, Washington, D. C.

[Letters to W. D., vol. 9, p. 343.]

ORDNANCE OFFICE,
Washington, January 15, 1849.

SIR: During the last session of Congress, the expediency of providing by law for extending to enlisted ordnance men acting as clerks at the arsenals the extra allowance granted to soldiers on fatigue duty by the act of 2d March, 1819, was recommended by you. A provision to that effect was included in one of the bills at that session, but was stricken out along with other amendments without any special objection, I believe, to it particularly.

I am induced by a firm conviction of the propriety and expediency of the measure, and of the equity of extending the allowance as proposed, again to call your attention to the subject, referring to your favorable recommendation of it to Congress at the last session and suggesting that it may be repeated at this.

I am, sir, &c.,

GEO. TALCOTT,
Colonel of Ordnance.

Hon. W. L. MARCY,
Secretary of War.

[Letters to Ordnance Officers, vol. 10, p. 322.]

ORDNANCE OFFICE,
Washington, January 24, 1849.

SIR: Your letter of the 2d instant, with the inclosed duplicate of the requisition previously forwarded, and on which my letter of the 21st December was based, has been received. In that letter I stated that the issue appeared to have been made without orders; both the generals of department and division *approving*, but abstaining from ordering the issue.

The requisition then before me sustains this statement, but it now appears that the approval at division headquarters is construed to mean an order to issue. I supposed that the construction which had been put on the 5th paragraph of General Orders No. 49, of 1848, had been abandoned; and this supposition was very natural, because the 78th article of Ordnance Regulations, coming from the same authority and having the same force as the General Regulations for the Army, requires *all* requisitions to be examined by the Chief of the Ordnance Department for modification if necessary, and thus brings this additional duty devolved upon commanders of divisions by the General Orders before stated, among the exceptions, as inapplicable. Being thoroughly convinced that the authority to order issues of ordnance and ordnance stores in time of peace, claimed to be derived from the 5th paragraph of the "Orders" is not granted thereby, at any rate without a previous examination of the requisitions by the Colonel of Ordnance, and seeing that no *order* was on the requisition you sent, I inferred that you had made the issue without authority, and called your attention to it accordingly. I am well aware of your obligation to obey the orders of the general of division, on the military principle of obedience to higher authority.

The flank defense carriages at Fort Pike are those regularly adopted for flank casemates by the Ordnance Board. They were not sent by Colonel Totten, who does not direct the preparation or supply of the armaments of

forts, but were made at Fort Monroe Arsenal and sent thence to Fort Pike by orders from this office. The commanding officer of that arsenal sent them off without previously painting them, as he should have done. The instructions were to leave them unpainted, merely giving them a coat of oil, until they were about to be sent to the forts. He neglected to paint them, it appears, and if, instead of oiling, he varnished them, it was still worse.

I am, sir, &c.,

GEO. TALCOTT,
Colonel of Ordnance.

Capt. R. H. K. WHITELEY,
Baton Rouge Arsenal.

[Letters to W. D., vol. 9, p. 347.]

ORDNANCE OFFICE,
Washington, January 26, 1849.

SIR: In answer to your call of 24th instant for a report of all property received by officers of the Ordnance Department in Mexico during the late war, except such as was purchased and paid for by them, I have the honor to state that the only evidence afforded by the files of this office is as follows:

A letter from Maj. H. K. Craig, of 24th May, 1846, says that there was captured in the actions of 8th and 9th of that month (Palo Alto and Resaca) 8 bronze guns, 9, 6 and 4 pounders, on old carriages drawn by mules, 8 sets mule harness, 450 muskets, 24 carbines, 18 lances, 5 pistols, 135,000 musket cartridges, 5,000 flints, a few rounds of field ammunition, and a few armorers' and smiths' tools.

On the 23d January, 1847, he sent copies of the invoices of ordnance stores taken at Monterey September 24, 1846, consisting of 33 guns and howitzers, bronze and iron, of various calibers, mostly small, mounted and dismounted, 250 muskets, 112 carbines, 43 lances, 1,469 12 and 18 pounder balls, 247 boxes of artillery ammunition, 352 rounds of ammunition, 350 grenades, 261 boxes musket cartridges, 128 boxes powder, 680 pounds and 6 arrobas of slow match, 70 quintals and 400 pounds of lead in balls and 101 quintals in bars, 10 dozen signal rockets, 60,000 musket cartridges, 2,117 cannon cartridges, 713 canister shot, 112 loaded shells, 2,870 priming tubes, 15 portfires, and a quantity of tools, materials, and incomplete parts of arms and implements.

A letter from Captain Huger addressed to me 30th March, 1847, after the capture of Vera Cruz, says that there was received on the ground where the enemy stacked their arms some 3,600 muskets, 180 escapette, 96 carbines, and 250 non-commissioned officers' swords. In the forts and bastions of the town, 61 bronze cannon, 24, 18, 16, 12, 9, 6, and 4 pounders, and 2 stone mortars, and 12 others not in position, making a total of 73 pieces of bronze artillery. Of iron cannon, 42 to 9 pounders, and mortars 13 and 10 inch, mounted, 52. Old and unserviceable, not mounted, 136. New guns of large caliber, not mounted, 6, making a total of 194 pieces of iron artillery, and in the castle 130 pieces bronze and iron, either mounted or for which they have carriages, and some old and useless, not mounted. The letter further says that the Mexican authorities can give, or will give, no returns, and what there was could only be found by hunting round. On the 5th of April he writes: "I will, by the next opportunity, be able to send you returns of the captured ordnance.

I have already told you the main items. I find in the castle an immense quantity of projectiles and ammunition; 44,871 solid shot, 18,211 empty shells, 3,716 filled shells, and 434 canister shot; there are 11,356 cartridges filled in *linen* bags; the powder in town (18 barrels) and castle only amounts to about 300 barrels; a large quantity of filled cartridges and shells are also distributed about the town."

The official return here promised never came to hand.

On the 27th of September, 1847, Captain Huger sent me a return of the ordnance and ordnance stores captured at the various places in the valley, of Mexico, including the city; this return embraced 57 bronze mounted howitzers, mortars, and cannon, and 16 mounted iron cannon, 16 wall pieces, 5,600 shot, 900 shells, and 1,700 canister shot of the various calibers, 210 barrels and 17 bags of powder, 4,000 cartridges for siege and garrison cannon, 3,000 rounds of ammunition for field artillery, 6 tons of slow match, 1,000 portfires, 15,000 primers for cannon, 5,000 cartridge bags, 1,500,000 musket cartridges, 1,000,000 flints, and 56 barrels of unserviceable powder.

The foregoing comprises all the information in this office as to ordnance stores obtained in Mexico, by capture or otherwise, except what was sent to ordnance officers from the United States; and the files of this office are deficient in enabling me to answer your further call for a report of how the property was disposed of.

We know by Lieut. P. V. Hagner's accounts that he sold in Mexico, after peace had taken place, captured ordnance stores to the amount of \$6,847.73, and by an account of Major Bell we know that when the American Army were about to leave the valley of Mexico he sold ordnance stores to various individuals, on their own account, to the amount of \$15,959.33, and to agents of the Mexican Government to the amount of \$87,655.93, but what portion of the same were captured stores is not shown. The papers accompanying this account also show a large quantity of captured stores delivered up to the Mexican Government in pursuance of the treaty of peace. Captain Kendrick, of the 2d artillery, acting ordnance officer, sold at Puebla, about the same time, ordnance stores to the amount of \$31,320.54, and Captain Williamson at Vera Cruz to individuals to the amount of \$365, and to an agent of the Mexican Government to the amount of \$21,845, but neither of their accounts shows what portion of the same were captured stores.

In all instances the sales were public sales, made in pursuance of the orders of the generals in command, and the proceeds duly accounted for. A large quantity of the small-arms and ammunition were, from time to time, broken up and the materials used, so far as they were of any value, in the repair and manufacture of articles for the use of the American Army; seventy-three of the captured bronze guns, howitzers, and mortars of various calibers are reported to have been sent to the United States.

I am, sir, &c.,

GEO. TALCOTT,
Colonel of Ordnance.

Hon. WM. L. MARCY,
Secretary of War.

[Letters to W. D., vol. 9, p. 354.]

ORDNANCE OFFICE,
Washington, February 13, 1849.

SIR: On the 9th March last, I referred a letter to you from Major Symington, commanding at Harper's Ferry Armory, asking if the State

of Virginia had the right to levy a tax on him while residing within the boundaries of the armory lands, and, if not, that the mode by which the tax should be resisted be pointed out. This question you referred to the Attorney-General, but no reply to it has reached this office, and it is again brought up in a letter from Major Symington, of the 12th instant, as the sheriff is unwilling to wait any longer, and again demands payment.

It was understood at the time that the Attorney-General considered that an opinion adverse to the right, was given substantially by one of his predecessors, Mr. Wirt. I find in the published Opinions of the Attorneys-General one adverse to the right of the authorities of a State to levy taxes on the *property of the United States* (page 469, Opinions of Attorneys-General); but the question made by Major Symington is as to the right of the State to tax him *for his own private property*, such as furniture, &c., and for his head-tax, while residing on land purchased by the United States with the consent of the State.

The question is an important one, for if the right thus to tax Major Symington is sustained, every officer residing at an arsenal or fortification may be taxed.

I inclose the letter of Major Symington and a copy of the one addressed to you on the 9th of March last, and beg that it may be brought again to the notice of the Attorney-General.

With great respect, &c.,

GEO. TALCOTT,
Colonel of Ordnance.

Hon. WM. L. MARCY,
Secretary of War.

[Indorsement.]

There can be no doubt but an officer, civil or military, can be taxed by a State in the same manner as any other citizen. I know of no law or reason to the contrary. If there was any, I should like to avail myself of it, for I should thereby save annually a considerable sum. Major Symington's residence on the arsenal property does not, in my opinion, alter the law. At all events it is strictly a *private matter* with which the government has nothing to do.

W. L. M.

[65 W. D., 1849.]

ORDNANCE OFFICE,
Washington, March 13, 1849.

SIR: I respectfully place before you a statement of arms, ammunition, and accouterments issued to Col. Henry L. Webb by Capt. R. H. K. Whiteley, commanding Baton Rouge Arsenal, in accordance with a special order of Major General Gaines, commanding the Western Division.

The arms, &c., in deposit at Baton Rouge Arsenal have not been placed at the disposal of General Gaines. All orders for the issue of arms, &c., are required by the regulations to issue from this office. The party, of which Colonel Webb is the head, is understood to consist of emigrants to California, and this application of public arms to private use is an anomaly. The value of property thus issued is \$1,595.50; and unless the War Department is possessed of information which has not been made known to me, this value or cost, above stated, appears to be properly chargeable to the general who ordered its delivery.

I am, sir, respectfully, your obedient servant,

GEO. TALCOTT,
Colonel of Ordnance.

The Hon. the SECRETARY OF WAR.

[Inclosure.]

BATON ROUGE ARSENAL, LOUISIANA,
February 28, 1849.

COLONEL: I have the honor herewith to transmit a requisition this day received from headquarters, Western Division, and to report the following ordnance stores issued to Henry L. Webb, esq., in obedience to the *positive order* of the commanding general, viz: 30 rifles, percussion, and appendages; 140 pistols, percussion, and appendages; 70 rifle-cartridge boxes and plates; 70 rifle waist-belts, 2-inch, and plates; 70 gunslings, russet; 4,000 rifle percussion cartridges; 4,000 pistol percussion cartridges.

I am, sir, very respectfully, your obedient servant,

R. H. K. WHITELEY,
Captain of Ordnance, Commanding Post.

To Col. GEORGE TALCOTT,
Commanding Ordnance Corps, Washington, D. C.

[Indorsement.]

ORDNANCE OFFICE, March 13, 1849.

Respectfully submitted to the Secretary of War with a letter on the subject.

GEO. TALCOTT,
Colonel of Ordnance.

[154 W. D., 1849.]

ORDNANCE OFFICE,
Washington, March 19, 1849.

SIR: In conformity to article 9th, Ordnance Regulations, I respectfully present for your approval certain matters acted upon by the Ordnance Board, at a late meeting of that body. I must remark, however, that I do not feel assured that the thickness of shells proposed for *cannon* will be found sufficient, nor that the arrangement of fuses for the same will not need some modification on further trials; but these matters will be carefully tested in the course of this year, so that if errors exist they may be corrected at no distant date.

I am, sir, respectfully, your obedient servant,

GEO. TALCOTT,
Bvt. Brig. General, Colonel of Ordnance.

Hon. G. W. CRAWFORD,
Secretary of War.

[Indorsement.]

Recommendations of the Ordnance Board approved.

GEO. W. CRAWFORD,
Secretary of War.

WAR DEPARTMENT,
March 22, 1849.

Statement of such changes in the Ordnance Regulations, and additions in the established patterns of ordnance stores as are recommended by the Ordnance Board for approval by the Secretary of War.

1. ORDNANCE REGULATIONS.

The Board recommend that the following changes be made of article 72, Ordnance Regulations, and the corresponding paragraph of the General Regulations of the Army, No. 891, of the edition of 1841. These articles to read as follows, viz: "One complete set of arms and accouterments of each description may, if the state of the public supplies will permit, be issued to any officer of the Army, for his own use and no others, on his payment of the cost price thereof to the issuing officer."

And the following is recommended as a substitute for article 73, Ord-

nance Regulations, viz: "All ordnance stores issued for the personal use of officers, agreeably to article 72, will be accounted for on the quarterly return of property of the officer making the issue, and the vouchers for such issues will be the duplicate acknowledgment of officers receiving the stores, stating the fact of having received the same and paid for them; the amount paid being likewise stated on the acknowledgment. The disbursing officer of the arsenal, armory, or depot, from which the issues are made, will credit all moneys thus received, in his next quarterly account current."

2. FUSES IN PAPER CASES.

The Board agree that the system of fuses in paper cases, to be inserted at the time of firing, answers all the purposes of field service, and recommend, accordingly, that they be adopted for both shells and spherical case shot for *field service*.

3. SHELLS, FUSES, PLUGS, FUSE-HOLES, &c.

The Board agree that the shells used for field howitzers will answer for siege and garrison guns up to and including the caliber of 42-pounder. The fuse-holes taper 0.15 inch to the inch. The same plugs and fuses as for field guns. The wood fuses as now used for mortars. The 8-inch mortar shell for siege howitzers. As the taper of fuse-hole of mortar shells is now only one-tenth, this does not hold the fuse firmly enough when fired with heavy charges. The Board, therefore, recommend to increase this taper by reaming it larger on the outside, so as to give these shells the same taper to fuse-holes as others, viz, 0.15 inch to the inch.

4. AMMUNITION FOR FIELD SERVICE.

The Board agree to charging shells and spherical case shot when the ammunition is put up. The shells should be filled with rifle powder, and the hole in the plug stopped with tow.

The Board determine to keep the charge and projectile of chambered guns separate, as heretofore. No change in the ammunition as now used or the manner of packing required.

A cartridge-block to be used for large charge with 12-pounder howitzer.

The spherical case shot for 12 and 6 pounder guns to be fixed, as the round shot. They will pack, as now, in the caisson.

5. CAISSONS FOR FIELD BATTERIES.

The Board agree to the following table of ammunition to be carried in the caissons:

In each ammunition chest.	Guns.		Howitzers.		
	12-pounder.	6-pounder.	32-pounder.	24-pounder.	12-pounder.
Strapped shot, fixed	20	35			
Spherical case shot, fixed	8	5			
Strapped shells			8	12	16
Strapped spherical case shot			6	8	16
Canisters	4	10	1	3	4
Number of rounds in each chest	32	50	15	23	36

6. SABOTS FOR SHELLS, &c.

The Board agree to sabots for shells as follows, viz: Field shells remain as drawn, present pattern. Siege and garrison, made of plank $1\frac{1}{2}$ inch thick, 0.75, depth of groove, 0.25, thickness of bottom. Columbiad and 42-pounder shells, sabot plank 2 inches thick, 1 inch depth of groove. Field sabots have handles attached to them. Siege and garrison guns, below 42-pounder, no handles. Shells, calibers above 42-pounder, to have handles attached to the straps. These must be made as strong as possible. Canisters for all but field guns to have handles attached to top.

7. PERCUSSION LOCKS, PRIMERS, &c.

The Board agree to depend upon percussion locks and primers and friction-tubes for field service; thus omitting the following parts of the present equipments and fire-works, retaining slow-match and linstock: Omit port-fire case, priming-horn, port-fire stock, shell plug-screw, fuse-extractor, copper funnel, fuse-auger, fuse-saw, fuse-set, fuse-gimlet, port-fire cutters, fuse-rasps, fuse-mallet, 8-ounce powder-measure, port-fires, cannon-tubes, cannon-fuses, quick-match, bursters, gunners' quadrants. Add 1 tube-pouch for fuses, 1 tarpaulin, 12 by 15, 1 gunners' pincers, 1 cannon lock, 1 lanyard and hook for friction primers.

In place of the fuses heretofore sent put—for 6-pounder batteries:

Paper fuses.—3'', as many as there are shells and spherical case shot; 2'', one-half as many each as there are shells and spherical case shot; 4'', one-half as many each as there are shells and spherical case shot.

Mountain howitzer batteries, same proportion of fuses as the preceding.

For the larger calibers:

Paper fuses.—3'', as many as there are shells and spherical case shot; 2'', one-third as many as each; 4'', one-third as many as each; 5'', one-third as many as each.

The mountain howitzer ammunition chest to be packed with 5 spherical case shot, 2 shells, 1 canister.

The fuses in paper cases to be wrapped in bundles of waterproof paper, and the proper number placed in each ammunition chest.

8. BATTERY WAGONS, FORGES, &c.

As the Ordnance Department is charged with the repair of batteries, it is deemed necessary to send only one battery wagon and one forge with each battery.

9. FUSES AND FUSE-HOLES FOR SHELLS—HEAVY GUNS.

The Board agree to make fuse-holes for columbiads—8 and 10 inch—one-inch diameter at bottom and enlarging towards the top, with a regular taper of 0.15 inch to the inch; to put eyes to the columbiad shells, as they will add to the facility of handling; will assimilate them to the mortar shell, and may prove convenient in loading. The fuse of 42-pounder shell to be $\frac{3}{4}$ inch at bottom, and to have a regular taper the same as the others. The charging holes, heretofore made in these shells, to be abolished, as no inconvenience is found in charging through the opening in bronze plug. Fuses in paper cases, as heretofore used, to be used for columbiads, and to be inserted in bronze plugs driven into the fuse-hole. After the plug is driven in, a reamer, of the exact size, is passed into it, so that the fuse will fit it precisely, and the top of the

fuse is reamed out 1-inch diameter, $\frac{1}{2}$ inch deep, to receive the thimble and cap screwed into a ring to secure the fuse from being extinguished when fired over the water. The top of the fuse is not riveted over the top of the thimble. As in the experiments heretofore made with shells for heavy guns it is found that the tendency of the fuse to be driven into the shell is greatest when the fuse-hole is in the axis, and that by putting the fuse-holes above the axis the fuse is as certain of catching fire, it is recommended, for guns and columbiads, to strap the shells as shot, with two cross-bands, and leave the fuse-hole in an angle of the bands; the shell to be inserted in the gun with the fuse up.

10. PERCUSSION ARMS.

The Board having duly considered the subject of rendering percussion arms less liable to accident, to which their attention was called by a letter from the Colonel of Ordnance, dated March 1, 1849, are of opinion that the musket and rifle, if carried at half-cock when the cap is on, are not more liable to accident than all arms must necessarily be. The French have adopted a safety-notch, which causes an alteration in the tumbler, and which may be found to be an improvement; and if we were commencing the manufacture of percussion arms, the Board would feel disposed to adopt it. The English, on the contrary, have the same arrangement as in our service. As arms used by *cavalry* are liable to shocks and falls, and are more subject to accidents than other arms, the Board recommend that all *cavalry fire-arms*, hereafter made (including Hall's carbine, if it will admit of it), should have a safety-notch, in place of the half-cock notch, as in the French model.

For the Board.

BENJ. HUGER,
Captain of Ordnance and Bvt. Colonel, Recorder.

[Miscellaneous Letters, No. 40, p. 137.]

ORDNANCE OFFICE,
Washington, March 23, 1849.

SIR: Your letter of the 14th instant has been received. So far as relates to the removal of the ordnance sergeant and the appointment of another in his place, this department has no control. The regulations place this matter under the direction of the Adjutant-General, to whom your letter has been submitted.

Whilst the garrisons were entirely withdrawn from the forts, during the Mexican war, some few enlisted ordnance men were authorized to be sent to them to take care of their armament; but on the return of the garrison they were recalled.

As Fort Morgan is, or soon will be garrisoned, it is hardly worth while to send ordnance men there now.

Respectfully, &c.,

GEO. TALCOTT,
Brevet Brigadier-General, Colonel of Ordnance.

Capt. J. M. SCARRITT,
Fort Morgan, Alabama.

[Letters to W. D., vol. 9, p. 362.]

ORDNANCE OFFICE,
Washington, March 22, 1849.

SIR: The following report, in relation to the condemned muskets now for sale, under the act of March 3, 1825, is respectfully submitted.

In June, 1842, the Secretary of War directed a critical inspection and classification of all the muskets manufactured prior to 1832, in deposit at the several arsenals throughout the country. The muskets made subsequent to 1831 being all good and serviceable, and of the most approved pattern, were excepted from this inspection and constituted a class by themselves—the first class. The rest were arranged into three classes. The *fourth* class included all muskets made prior to 1812, and all unserviceable and damaged arms, not worth repairing, made at later periods. They were to be sold. The *third* class included all arms made between 1812 and 1820, inclusive, not thrown into the fourth class on account of damages. They were unfit for alteration to the percussion system, and not suitable for ordinary issues, but were still retained for the present. The *second* class included all muskets made from 1821 to 1831, inclusive, except such, as for damages in use, were placed in the lower classes. These arms were suitable for issue to troops and for alteration to percussion. Agreeably to these directions, the inspection was made and the arms were classified. The sale of fourth class muskets (amounting to 108,821) was commenced, and about 65,000 were disposed of, when on the occurrence of the Mexican war it was suspended, still leaving a portion of these arms on hand. A large portion of the muskets which had been in use by the troops during the war were turned in at its close in a damaged condition. Another inspection was therefore directed by the Secretary of War, and as the percussion system had been adopted for all small arms, and there was a supply of muskets on hand originally made according or suitable for alteration to that system of more than 400,000, it was determined to dispose by sale of all others which, in the language of the act of March 3, 1825, were “damaged or otherwise unsuitable for the public service.” The number of such arms amounted to about 23,000, which were collected for sale at New York City, that being considered the most suitable point for the purpose, both as the great mart of business, and as affording facilities for their shipment by purchasers to any part of the world.

Such of these arms as were complete in all their parts and fit for use without repairs, were limited in their price at \$5 each; but the bids at public auction not reaching that limit, except for a single box of 20 muskets, they were not sold, and still remain subject to private sale. No limit as to price was placed on the unserviceable and damaged arms, and there will probably be few or none of them left unsold at public auction. All *such*, offered at the sale of last November, were sold—there are about 80,000 of them to be offered at the late sale, in February last, but the number sold has not yet been reported. If there be any, they are subject to private sale at prices not less than were offered by public bids.

It is not probable that any sales were made in February of the arms, limited in price; the number of which was about 130,000.

I am, sir, &c.,

GEO. TALCOTT,
Bvt. Brig. General, Colonel of Ordnance.

Hon. GEO. W. CRAWFORD;
Secretary of War.

[Letters to W. D., vol. 9, p. 366.]

ORDNANCE OFFICE,
Washington, March 27, 1849.

SIR: When the garrisons of the forts on the seaboard were withdrawn, during the Mexican war, some few enlisted men of ordnance were taken from the regular garrisons of the neighboring arsenals, and posted at ungarrisoned forts to aid the ordnance sergeants in taking care of their armament. Those forts having been re-occupied by troops, the necessity for such aid to the ordnance sergeants ceased; and the ordnance men being required at the arsenals, I directed Lieutenant Dearborn, commanding Mount Vernon Arsenal, to withdraw from the forts in Pensacola harbor, the men who had been temporarily detached from his command for service at these forts.

Brevet Colonel Gardner, commanding in the harbor of Pensacola, declines permitting these men to be returned to their appropriate stations and duties (as you will perceive by the enclosed correspondence between him and Lieutenant Dearborn on the subject), without an order to that effect through the Adjutant General of the Army.

I consider the right of assigning enlisted men of the Ordnance Department to posts and stations to be clearly granted to the Colonel of Ordnance by the 61st article of ordnance regulations; but without stopping to discuss the question raised by Colonel Gardner, I respectfully request that it may be settled, so far as this case is concerned, by an order through the Adjutant-General's Office directing the enlisted ordnance men to be relieved from detached service at the forts in Pensacola harbor, and returned to duty with the detachment, at Mount Vernon Arsenal, to which they belong.

I am, sir, &c.,

GEO. TALCOTT,

Bvt. Brig. General, Colonel of Ordnance.

Hon. GEO. W. CRAWFORD,
Secretary of War.

[301, W. D., 1849.]

ORDNANCE OFFICE,
Washington, April 2, 1849.

SIR: I respectfully submit to you a letter from Brevet Captain Callender asking a recognition of his present command as that of a captain. The question in this case is only as to the fact, whether the command of the United States Arsenal, near Detroit, is that of a captain.

As I have known the ground taken, in discussions on this subject, that a staff officer cannot "*command*," it may not be improper for me to remark, on this point, that the ordnance differs from the other corps, in the Army, commonly called "staff corps," in its being composed not of officers only, but chiefly of enlisted men; which men are disciplined, armed, clothed, subsisted, and subject to the Rules and Articles of War in like manner with the soldiers of the line, and are declared by the second section of the act of July 10, 1848, chapter 99, to be "regular troops in the service of the United States." Officers commanding these men are, therefore, in the exercise of "*command*," as technically understood. But independently of argument on this point, the fact of ordnance officers *commanding* is recognized by law, as will be seen by reference to the fourteenth section of the act approved July 5, 1838.

Brevet Captain Callender, therefore, commands an arsenal, declared by the act of 3d March, 1849, to be a "fixed or permanent post of the Army of the United States" with a garrison of regular troops.

Previous decisions of the War Department have recognized the exercise of command according to brevet rank in precisely similar cases. Several such decisions have been made and are doubtless on the files of the War Department; the arsenals at Baton Rouge, La., Little Rock, Ark., and Governor's Island, N. Y., all of the same class with Detroit Arsenal, are therein recognized as captains' commands. I am not aware of a single adverse decision.

I am, sir, &c.,

GEO. TALCOTT,
Brevet Brigadier-General, Colonel of Ordnance.

Hon. G. W. CRAWFORD,
Secretary of War.

[Indorsement.]

The command of Brevet Captain Callender is unmixed, that is, it is composed of his own corps. His application for brevet pay must be disallowed.

G. W. CRAWFORD,
Secretary of War.

MAY 3, 1849.

[Inclosure.]

WASHINGTON, March 19, 1849.

SIR: At the proper time I respectfully request you to lay before the War Department, my claims to be recognized in my brevet rank of captain for commanding the Detroit Arsenal. According to the decisions heretofore made, the command of an arsenal of this class gives to a lieutenant having the brevet of captain the exercise of his brevet rank. There are several decisions and precedents on this point in precisely similar cases. I remember the decision of Mr. Spencer, Secretary of War, in the case of Brevet Captain Lee of the ordnance; also the decision of Mr. Marcy in regard to the same officer. These all recognize arsenals of the same class as Detroit Arsenal, as captains' commands. I am not aware of a single adverse decision in like cases.

The auditing officers of the Treasury require in all cases the decision of the War Department as to what constitutes the exercise *in fact* of brevet command, as a question of fact.

Very respectfully, your obedient servant,

F. D. CALLENDER,
First Lieutenant of Ordnance and Brevet Captain.

Brig. Gen'l GEO. TALCOTT,
Ordnance Office, Washington.

[Indorsement.]

ORDNANCE OFFICE, April 2, 1849.

Respectfully recommended to the favorable consideration of the Secretary of War.
GEO. TALCOTT,
Bvt. Brig. General, Colonel of Ordnance.

[243 W. D., 1849.]

WAR DEPARTMENT,
Washington, April 5, 1849.

Hereafter no bond of a disbursing officer of the Army will be taken to be good and sufficient, within the meaning of the 6th section of the act "for organizing the general staff, and making further provision for the Army of the United States," approved April 24, 1816, until the sureties thereto shall have made declaration on oath or affirmation, showing

that they are jointly worth the amount of the penalty of said bond, over and above their debts and liabilities. The oath or affirmation will be made and subscribed before some judge, justice of the peace, or other officer authorized to administer oaths, certified by him, and attached to the bond. The certificate as to the sufficiency of the sureties heretofore made by the district judge or attorney may be dispensed with.

GEO. W. CRAWFORD,
Secretary of War.

CHIEF OF ORDANCE.

[Letters to Ordnance Officers, vol. 10, p. 423.]

ORDNANCE OFFICE,
Washington, April 14, 1849.

SIR: An application to the Secretary of War for the discharge of laborers John Barrett and Michael White, signed by several citizens of Pittsburgh, has been referred to this office. Annexed to the application is a letter to the Secretary, from John J. Mitchell, stating that they had applied to you, and that you suggested to them "to obtain the signatures of some persons who were willing to act as their friends, and forward the same to the Secretary of War, urging their request."

The course therein imputed to you is certainly a very singular one to be adopted by a commanding officer towards his men; so much so that I am constrained to doubt the accuracy of Mr. Mitchell's statement. You surely know, or ought to know, better than any one else, whether it is consistent with the interest of the service, and in other respects proper, to comply with the requests of your own men for discharge. If it was so, it is to be supposed that you would yourself have forwarded an application for their discharge, in the proper and usual way, and if otherwise that you would not have suggested the use of such means to effect the object.

In a case where the proper course was so obvious, it is to be regretted that the Secretary of War should have been troubled with it, but as the application has come before him, and required some action, you will report whether it can be granted consistently with the public interests. If the men ought to be discharged you will state the reason therefor, and forward the usual certificates.

I am sir, &c.,

GEO. TALCOTT,
Bvt. Brig. General, Colonel of Ordnance.

Capt. E. HARDING,
Allegheny Arsenal.

[Letters to W. D., vol. 9, p. 378.]

ORDNANCE OFFICE,
Washington, May 2, 1849.

SIR: Ordnance and ordnance stores have been required from the arsenals, in several cases recently, without a compliance with the regulations prescribing the manner of obtaining such supplies in time of peace. This deviation from the regulations has doubtless arisen from a continuance of the practice in this respect which prevailed during the war with Mexico, at that time regular and authorized, but which should have ceased with the war.

The existing regulations, if complied with, are amply sufficient to correct the error, and I therefore respectfully suggest that a general order be issued, calling the attention of all officers to the requirements of paragraphs 893 and 894 of the General Regulations for the Army (edition of 1841), and directing their observance by all who may not have received the special authority prescribed by paragraph 890.

I am, sir, &c.,

GEO. TALCOTT,

Bvt. Brig. General, Colonel of Ordnance.

Hon. G. W. CRAWFORD,

Secretary of War.

[Letters to W. D., vol. 9, pp. 381, 382.]

Indorsement on a letter from Lieut. Col. R. L. Baker, dated Watervliet Arsenal 17th May, 1849, reporting having repaired some artillery harness and small-arms which were returned from Mexico, and makes suggestions in relation to these stores.

ORDNANCE OFFICE,

May 21, 1849.

Respectfully submitted to the Secretary of War. The regulation published in General Orders No. 47 of 1842, embraces the principle of Lieutenant-Colonel Baker's recommendation which, I think, it would be advisable, for the economy of the service, to extend so as to include arms, harness, and other ordnance stores.

GEO. TALCOTT,

Bvt. Brig. General, Colonel of Ordnance.

[Indorsement.]

The regulation of the 30th July, 1842, published in General Orders No. 49 of that year, relative to the repair and reissue of accouterments and equipments, is so far amended as to include arms, harness, and other ordnance stores that may by repairs be rendered fit for service during time of peace.

G. W. CRAWFORD,

Secretary of War.

MAY 23, 1849.

[Miscellaneous Letters, vol. 40, p. 237.]

ORDNANCE OFFICE,

Washington, May 21, 1849

SIR: I inclose herewith a list* of non-commissioned officers and privates of the howitzer and rocket company in service during the Mexican war, who are recommended by Bvt. Capt. J. L. Reno, to receive the certificates of merit authorized by the 17th section of the act approved March 3, 1847. It is proper to observe that these men, although enlisted and paid as carriage makers, artificers, and laborers of ordnance, had a company organization in the field, and did duty in the grades prefixed to their names on the list. If, under those circumstances, they can be considered as coming within the provision of the law applicable to "private soldiers," I request that the proper measures may be taken for

* Not published herein.

obtaining "certificates of merit" for such of them, as were distinguished while serving in that capacity. Should a more particular statement of the services in each case be necessary in order to obtain the certificates, Captain Reno, on being informed thereof, will probably be able to furnish it.

Respectfully, &c.,

GEO. TALCOTT,

Bvt. Brig. General, Colonel of Ordnance.

Bvt. Maj. General R. JONES,

Adjutant-General United States Army.

[Miscellaneous Letters, vol. 40, p. 250.]

ORDNANCE OFFICE,

Washington, May 29, 1849.

SIR: In my letter to you of the 27th September last, I requested that measures might be taken to assign quarters permanently for the military storekeeper and three enlisted men of ordnance (who were to be stationed at Augusta Arsenal, Georgia), agreeably to the arrangement sanctioned by the Secretary of War on the 11th March, 1845, a copy of which was inclosed. From the inclosed letter, received to-day from Military Storekeeper J. M. Galt, it appears that no definite arrangement in regard to this matter has yet been made, and I respectfully call your attention to it, in the hope that a permanent assignment of quarters may be made, by which the storekeeper and ordnance men may not interfere with the company of artillery, nor be liable to exclusion from quarters or change on every change of or addition to the garrison of the post. It may not be improper to remark that the arrangement before referred to was made on consultation with the General-in-Chief, and was fully concurred in by him.

Respectfully, &c.,

G. TALCOTT,

Bvt. Brig. Gen., Col. of Ordnance.

Bvt. Maj. Gen. R. JONES,

Adjutant-General of the Army.

[Letters to W. D., vol. 9, p. 383.]

ORDNANCE OFFICE,

Washington, June 14, 1849.

SIR: A letter from the governor of South Carolina, representing the unguarded state of the powder deposited in Castle Pinckney and of the arsenal at Charleston, was yesterday referred to this office for perusal and remark. But before the views of this department on the subject could be communicated, the whole matter was placed at the discretion of the commanding officer of Fort Moultrie, to furnish such guards from his garrison as he might deem necessary. As this action is, so far as relates to the arsenal, a matter of too much importance to the Ordnance Department to be acquiesced in silently, I feel it my duty to make to you the following report on the subject:

The arsenal at Charleston was established there when Mr. Poinsett,

from that State, was Secretary of War. It was then considered a safe and proper location for an arsenal.

Arsenals are established by law for ordnance purposes; for the preparation and deposit of munitions of war. They consist of workshops, storehouses, and suitable buildings for the artificers and workmen engaged in its operations. They are not designed to receive garrisons in addition to the enlisted force specially authorized and provided by law for them, and contain no suitable accommodations for the purpose. To convert them into posts with such mixed garrisons renders them unfitted for use as arsenals.

If the arsenal at Charleston cannot be safely continued as an arsenal it must be broken up, and the stores and ordnance operations transferred to some other arsenal not exposed to the same dangers. I apprehend, if the Southern arsenals be abandoned as arsenals, that they will not be converted into garrisoned posts. Our Army on the peace establishment (which Congress will not enlarge except for frontier service) is only adequate to furnish garrisons for the great forts on the seaboard and for the Southwestern and Northern frontier, for the Indian country and the new Territory on the Pacific.

I can send thirty (or more) men to Charleston Arsenal, enlisted *laborers* of ordnance, armed and drilled as the troops at Fort Moultrie and just as fit for a guard, besides doing the *ordnance* duties of the post. If this will not furnish a sufficient protection for the arsenal it should be abandoned.

Castle Pinckney is a fort intended for a garrison. It has only the amount of powder in its magazine proper for the armament of the fort.

I am, sir, &c.,

GEO. TALCOTT,
Bvt. Brig. Gen., Col. of Ordnance.

Hon. G. W. CRAWFORD,
Secretary of War.

[141 W. D., 1850.]

ORDNANCE OFFICE,
Washington, June 19, 1849.

SIR: The 25th paragraph of the Regulations for the Pay Department requires "the particular posts and arsenals, at which the commanding officers will be entitled to additional rations, shall be announced in orders."

I have, therefore, to request that orders may be issued, announcing the armories and arsenals commanded by commissioned officers, to whom additional rations are granted by the 1st section of the act approved March 3d, 1849, chapter 101; such orders being requisite for the execution of the law.

The inclosed list designates the armories and arsenals, which now come within the provision of the act.

Respectfully, your obedient servant,

GEO. TALCOTT,
Bvt. Brigadier-General, Colonel of Ordnance.

Hon. G. W. CRAWFORD,
Secretary of War.

List of arsenals and armories commanded by commissioned officers.

Designation of arsenals or armories.	Names of commanding officers.
Watervliet Arsenal.....	Maj. R. L. Baker.
Springfield Armory.....	Maj. J. W. Ripley.
Harper's Ferry Armory.....	Maj. John Symington.
Saint Louis Arsenal.....	Maj. W. H. Bell.
Allegheny Arsenal.....	Capt. E. Harding.
Washington Arsenal.....	Capt. A. Mordecai.
Fort Monroe Arsenal.....	Capt. B. Huger.
North Carolina Arsenal.....	Capt. J. A. J. Bradford.
Frankford Arsenal.....	Capt. G. D. Ramsay.
Watertown Arsenal.....	Capt. W. A. Thornton.
Charleston Arsenal.....	Capt. John Williamson.
Baton Rouge Arsenal.....	Capt. R. H. K. Whiteley.
New York Arsenal, Governor's Island.....	Capt. G. H. Talcott.
Pikesville Arsenal.....	Capt. L. A. B. Walbach.
Kennebec Arsenal.....	First Lieut. R. A. Wainwright.
Mount Vernon Arsenal.....	First Lieut. A. H. Dearborn.
Detroit Arsenal.....	First Lieut. F. D. Callender.

ORDNANCE OFFICE,
Washington, June 19, 1849.

GEO. TALCOTT,
Brevet Brigadier-General, Colonel of Ordnance.

ORDNANCE OFFICE,
Washington, June 22, 1849.

SIR: In my letter to you of the 19th inst., I requested the issuing of an order announcing the arsenals and armories, at which the commanding officers were entitled to additional rations. Such an order is requisite for the execution of that portion of the act of 3d March, 1849, which includes these officers, when commissioned, among the commanders of "separate and permanent or fixed posts of the Army of the United States" and makes provision for the allowance to them of additional rations. It is rendered requisite to satisfy a regulation of the Pay Department (the 25th paragraph) stating the form and manner of indicating to that department the "double ration" posts. Without that regulation the order would be unnecessary, the law itself defining very clearly to whom the additional rations are to be allowed, viz, "commissioned officers commanding arsenals or armories." The law appears to me so plain that I thought it only necessary to call attention to the prescribed form of carrying it into effect to have it done. The act certainly means to give additional rations to some persons, and it specially designates those persons as "commissioned officers commanding arsenals or armories." Nothing more was asked in my letter but the executive action requisite to carry out the intent of the law. But I understand that a doubt has been raised growing out of the language of the act of 23d August, 1842, 6th section, which gives additional rations to the "commandant of each permanent or fixed post garrisoned by troops." If there were any obscurity of language about the act of 3d March, 1849, any difficulty whatever of ascertaining who were the commissioned officers commanding arsenals or armories, then there might be some reason for referring to other legislation to solve the doubt. But even admitting that the terms, "being separate and fixed or permanent posts of the Army of the United States," appended to "arsenals or armories" in the act, required the fact of such places, being posts of that kind, to be established, I ask whoever doubted that they were posts? and may confidently reply that no one ever called the fact in question, any more than the self-evident one of their being separate and permanent or fixed. The very character of an arsenal or armory constitutes it a military post.

A military officer is assigned to its command and enlisted men of the

Army form its garrison and perform guard, police, and other military duties. Is there any doubt about the arsenals being military posts when artillery companies are sent to them?

All the definitions of the term post by military writers include arsenals, "*Post est toute sorte de terrain fortifié ou non, est capable de loger des soldats*" (old French military dictionary). "Post in war, a military station; any spot of ground fortified or not" (James's Military Dictionary). Duane, in his Military Dictionary, under the article *poste* (French), says: "Every construction or group of buildings that will admit of being defended, and is consequently tenable, is called a *poste de campagne* or field-work."

When Mr. Spencer decided that double rations could not be granted to commandants of arsenals and armories under the sixth section of the act of August 23, 1842, it was on the sole ground that they were not, in his opinion, "garrisoned with troops." He did not question that they were posts. Now, the act under which the claim for additional rations is now made does not require the arsenals and armories to be garrisoned with troops, but if it did, it could in nowise invalidate the claim. They are all garrisoned by enlisted ordnance men stationed thereat, like any other garrisons of any other posts, to defend them against an enemy, to keep them in good order, to take care of all public property there deposited, or to do either or all of these things. The men stationed at them are enlisted, uniformed, subsisted, paid, armed, equipped, and drilled; they are subject to the Rules and Articles of War; they regularly mount guard just as any portion of any one of the regiments of the line would do if stationed at the same place, and they are liable to be ordered to do duty in an enemy's country and to stand up in line of battle under an enemy's fire, as they have done with honor to themselves and their corps. They are entitled to receive pensions like other soldiers, and the law granting them pensions expressly admits them to be "regular troops in the service of the United States." This law is the act approved July 10, 1848. It is subsequent to Mr. Spencer's decision against the claim, under the act of August 23, 1842, on the ground that the arsenals were not garrisoned by troops, and fully answers and refutes such an objection at this time.

In the foregoing I trust it has been made to appear that commissioned officers commanding arsenals or armories are entitled to additional rations by the act of 3d March, 1849, without any condition annexed; but *even supposing* that a proper construction of that act requires a reference to the previous one of August 23, 1842, and thus imposes the condition that these arsenals shall be garrisoned by troops, such condition is satisfied.

I am, sir, very respectfully, your obedient servant,

GEO. TALCOTT,

Brevet Brigadier-General, Colonel of Ordnance.

Hon. G. W. CRAWFORD,
Secretary of War.

[Indorsement.]

The law executes itself.

G. W. C.

[Inclosure.]

On the question of the authority of the major-general to create a military geographical department in a foreign country.

I am unable to come to any logical conclusion on this question as yet, but submit the following remarks:

I. When the term "military geographical departments" was used in the body of the act of 1842, it has been applied exclusively to geographical division of the United

States. In practice it has been confined to the United States, and according to the rules for the construction of statutes it is understood the construction of terms used in statutes is limited by the sense which they had acquired by common use at the date of the act. I, therefore, understand that a "military geographical department" is a territorial division of the *United States*.

II. The authority of the major-general is not distinguished by law from that of other commissioned officers. He is simply the officer highest in rank, and, as such, commands all others, *when serving with them*, but he does not necessarily command the whole Army or any part of it; his command depends on his situation with regard to them. The President may, as he has done, assign him to the command of a division, perhaps of a department. He is *in* the Army and *of* the Army, not *over* the Army.

The President is *over* the Army, and the only military authority known to the law as commanding the Army.

It seems, then, obvious that any subordinate organization of the Army, recognized by law, should be made by that authority which only is known to the law; which only is permanent in its character; which only is superior to the subject-matter of its action.

The President has always exercised the power of constituting the departments. They are, according to the regulations, constituted "for the general defense of the Union" (Regulations, 1847, page 9). This is an object of the President's care. The Army, including all the officers, is at his command for the purpose. It is not for the major-general or other officer to take measures for the defense of the Union; that is not intrusted to him or them, but to the President.

III. If the major-general can make a *department*, why can he not make a *division*? If he can make a *department*, why cannot a *brigadier* do the same? Divisions differ from departments only in extent of territory; major-generals differ from brigadiers only in extent of command. I do not find that a major-general can issue any order to his inferiors which a brigadier may not issue to *his*.

The following conclusions, though not sustained by satisfactory reasoning, are respectfully submitted as correct:

1st. That "military geographical departments," within the act of 1842, are territorial divisions of the United States.

2d. That they are part of a system of military organization and assignment of duties, and, as such, must be made by an authority superior to the Army, not by an officer of the Army.

3d. That being a species of organization *recognized by law* as made and to be made, they must be made by that military authority which only is *known to the law*—that of the President. It may have been fully competent for General Scott to assign Colonel Gates to the command of a district of country geographically limited and to call it a department, but not to make it a department *within the act of 1842*.

Respectfully submitted.

JNO. D. MCPHERSON.

[Letters to W. D., vol. 9, p. 390.]

Indorsement made on a letter from Brevet Major Wm. A. Thornton, dated New York Depot, June 22, 1849.

ORDNANCE OFFICE,
Washington, June 25, 1849.

Respectfully submitted to the Secretary of War for instructions as to the disposition to be made of the net proceeds of sale. Such proceeds of sales from condemned arms at public auction, heretofore made, have been placed to the credit of the appropriation for "the purchase of ordnance, ordnance stores, and supplies," in conformity with the 103d article of Ordnance Regulations, and this would seem to be the proper disposition in this case. But as the sale was not by auction, and it is not clear that the disposition of the proceeds is provided for by the regulations, the orders of the Secretary in the case is requested.

I am, sir, &c.,

GEO. TALCOTT,
Bvt. Brig. Gen. Colonel of Ordnance.

[Indorsement.]

The *mode* of sale does not affect the disposition of the proceeds. The law directs the sales to be made "under such rules and regulations as may

be prescribed by the Secretary of War"; and, the sale of the arms in question having been so made, the proceeds will be carried to the credit of the appropriation as heretofore.

G. W. CRAWFORD,
Secretary of War.

WAR DEPARTMENT, *June 26, 1849.*

[375 W. D., 1849.]

BATON ROUGE ARSENAL, LOUISIANA,
June 20, 1849.

GENERAL: I have the honor herewith to forward two applications for the discharge of two enlisted men of the Ordnance Department at this arsenal.

I deem it my duty to lay these papers before you.

I certify that these men are not indebted to the United States on account of clothing.

I am, sir, very respectfully, your obedient servant,

R. H. K. WHITELEY,
Captain of Ordnance, Commanding Post.

To Brig. Gen. GEO. TALCOTT,
Commanding Ordnance Corps, Washington City, D. C.

[First indorsement.]

ORDNANCE OFFICE,
July 2, 1849.

Respectfully referred to the Adjutant-General with the recommendation that the discharges be granted.

GEO. TALCOTT,
Bvt. Brig. Gen., Col. of Ordnance.

[Second indorsement.]

REMARKS.

It is seen that applications for the discharge of enlisted men of the ordnance are becoming quite numerous. Sometimes the application is based upon the worthlessness of the men; sometimes for his good conduct, &c., &c. Although there may be no loss in the expenditure of money by enlisting recruits to supply the places of men thus discharged, yet there must be some inconvenience to the service by substituting inexperienced men so frequently, for those who have had some *training* in the department and knowledge of their practical duties, &c. I am inclined to the opinion that these frequent discharges are at variance with the public interest; and I am certain it should not be so slightly regarded as to become a commonplace convenience for such as enlist to-day, but a week or a month hence change their mind, and choose to go back to civil life, &c. I therefore respectfully recommend, that the general rule with respect to discharges, be made to apply to the enlisted men of the ordnance, and that they hereafter be required to serve out their time like other enlisted men of the Army; and I also respectfully recommend that these men be not discharged the public service.

Respectfully submitted,

R. JONES,
Adjutant-General.

JULY 6.

Disallowed.

[Third indorsement.]

G. W. CRAWFORD,
Secretary of War.

JULY 10, 1849.

[Fourth indorsement.—407 W. D., 1849.]

ORDNANCE OFFICE, *July 20, 1849.*

It is not expected or desired that the decision of the Secretary of War, in the two cases presented herein should be changed. Whether these two men are discharged or retained in service, I regard as of no moment in a public point of view. Indeed if I had known the previous action in Ebeling's case, I would not have presented it again; but I think that both sides of the question should be presented before any general rule on the subject is adopted.

Enlisted men of ordnance receive no bounty for enlisting or re-enlisting, nor does the recruiting officer receive anything for his services in that capacity. There is not the least difficulty in keeping our ranks full; on the contrary we can readily enlist more than we want, and by discharging bad or *discontented* subjects, we secure not only a correct, but a cheerful and willing performance of duty. No discharges can be granted if the soldier is indebted to the United States, nor without the recommendation of his commanding officer who would feel the inconvenience supposed by the Adjutant-General more than any one else; such inconvenience I have never heard of as *practically* felt. So far from the discharge of ordnance men, who have received "some *training* in the department and *knowledge* of their practical duties," &c., &c., being "at variance with the public interest," I think it is exactly the reverse. This training and knowledge of practical ordnance duties, which can be obtained in no other branch of the service, is not lost, but is carried into civil life with that class of men who are always to compose our armies in time of war, and the wide diffusion of such knowledge seems to me to be sound policy. The government educate and train yearly, at considerable expense, many young men in military service and knowledge, both theoretical and practical; but I believe it is never objected to as "at variance with the public interest" that they should go into civil life after receiving that education. It is diffused among the people and forms a part, and no inconsiderable one of our military capital; so, in a vastly inferior degree I admit, but still in some, is it with discharged soldiers; and where it costs nothing, and occasions no other inconvenience than the preparation and signature of the discharge, I think it rather promotive of, than at variance with, the public interest. The trouble of new training and instruction, the ordnance officers are perfectly willing to undertake, and competent to execute. The application of a general rule to widely dissimilar cases cannot be right, no matter who recommends it, and I trust no such "procrustean" operation will be sanctioned.

WM. MAYNADIER,
Captain of Ordnance, in charge of Ordnance Bureau.

[Fifth indorsement.]

ORDNANCE OFFICE, *July 20, 1849.*

Respectfully submitted to the Secretary of War, in reply to the Adjutant-General's "remarks" concerning the discharge of enlisted men of the Ordnance Corps.

WM. MAYNADIER,
Captain of Ordnance, in charge of Ordnance Bureau.

[Sixth indorsement.]

Returned for reconsideration.

JULY 20, 1849.

G. W. CRAWFORD,
Secretary of War.

[Seventh indorsement.]

I regard the discharge of enlisted ordnance men, in almost all instances as a *punishment*. In some special cases, such as where a good man has an opportunity presented of bettering his condition in life by leaving the service, or where other reasons are given satisfactory to his commanding officer and to this office, a discharge is recommended as a favor. The practice in this respect, that has heretofore prevailed, has worked well, and restricted as it is, is not likely to be abused. I therefore see no necessity for a new rule.

GEO. TALCOTT,
Brevet Brigadier-General, Colonel of Ordnance.
ORDNANCE OFFICE, July 24, 1849.

[Letters to Ordnance Officers, vol. 11, p. 11.]

(CIRCULAR.)

ORDNANCE OFFICE,
Washington, July 3, 1849.

SIR: I inclose herewith, for your information and government, a copy of a circular from the War Department, of the 27th ultimo:

WAR DEPARTMENT, *Washington, June 27, 1849.*

The attention of the officers in charge of the disbursing bureaus of the War Department is directed to the first section of an act approved the 3d of March, 1849, entitled "An act requiring all moneys receivable from customs, and from all other sources, to be paid immediately into the Treasury, without abatement or reduction, and for other purposes" (Pamphlet Laws, p. 105).

By the terms of this act, it seems to be required that all moneys derived from sales of public property, leases, rents, &c., if any shall be paid into the Treasury for general purposes, not subject to be drawn unless after reappropriation by law. The act takes effect on the 1st of July next.

GEO. W. CRAWFORD,
Secretary of War.

In compliance therewith all officers of the Ordnance Department who receive money from sales, leases, rents, &c. (including the sales under the resolution of Congress of the 2d of March last, and issues under the 72d article of the Ordnance Regulations amended), will deposit the sums so received with the nearest assistant treasurer or depository, to the credit of the Treasurer of the United States, quarter-yearly, or oftener, if the proximity of the depository or the amount to be deposited will justify it, and take duplicate receipts for the same. One of these receipts will be sent with the next account current, on which the amount so received and deposited during the quarter from each of these sources will be credited and charged.

I am, sir, &c.,

WM. MAYNADIER,
Captain of Ordnance, in charge of Ordnance Bureau.

TO OFFICERS COMMANDING ORDNANCE STATIONS.

HEADQUARTERS OF THE ARMY,
West Point, N. Y., July 20, 1849.

GENERAL: I am instructed by Major-General Scott to acknowledge the reference from your office, under date of July 1, of the letter of the

Colonel of Ordnance of May 2, to the Secretary of War, relative to the non-observance of the regulations, on the part of some commanders, in the mode of requiring ordnance supplies from the arsenals, and to inclose a copy of General Orders, No. 10,* this day issued, with a view to the correction of the irregularities reported.

The circumstances of the service in Oregon, California, New Mexico, and Texas rendering the measure necessary, the General-in-Chief, by the second paragraph of the order, has empowered the commanding officer of the Third Division and the Eighth and Ninth Military Departments to call at their discretion for ordnance and ordnance stores from the arsenals and depots within the limits of their respective commands.

Having the final decision in all matters relating to requisitions for ordnance supplies (see paragraphs 893 and 894 of the Regulations for 1841), and in view of the reference of the subject to him by the War Department, the General-in-Chief hopes the special authority thus conferred may not be considered at variance with the spirit of the 890th paragraph of the Regulations just quoted.

I have the honor to be, general, &c.,

W. G. FREEMAN,
Assistant Adjutant-General.

To Bvt. Maj. Genl. R. JONES,
Adjutant-General of the Army, Washington, D. C.

[Letters to W. D., vol. 9, p. 402.]

ORDNANCE OFFICE,
Washington, August 1, 1849.

SIR: In my late letter to you on the subject of the arsenal at Charleston, I stated my conviction of the impracticability of properly conducting the operations of the Ordnance Department at the arsenals when garrisoned with troops of the line.

The only reason assigned for posting such garrisons at arsenals has been the protection of the arms and munitions there deposited against a certain class of the population. I have not a doubt that the arsenals now established by law in the Southern States may be safely continued there for the purposes intended by law. No reasonable man, I think, can doubt that supplies of arms in proper places are the best means of protection and defense, instead of being a source of danger to the white

[* 147 A., 1849.]

[General Orders, No. 10.]

HEADQUARTERS OF THE ARMY,
West Point, N. Y., July 20, 1849.

1. Complaints having been made that ordnance and ordnance stores have been required from the arsenals, in several cases recently, without a compliance with the regulations prescribing the manner of obtaining such supplies in *time of peace*, the General-in-Chief calls the attention of all officers to the requirements on the subject, found in paragraphs 893 and 894 of the General Regulations for the Army (edition of 1841), and directs that (with the special exceptions made below) they be hereafter strictly observed.

2. In consequence of their remoteness and the infrequency of communications with the posts in the Third Division and in the Eighth and Ninth Military Departments, they will be supplied with ordnance and ordnance stores on requisitions approved by the general or other officer in command, instead of such requisitions being forwarded to Army Headquarters for the decision of the General-in-Chief.

By command of Major-General Scott.

W. G. FREEMAN,
Assistant Adjutant-General.

population. Every one acquainted with the condition of the South will, I doubt not, admit this to be true. But if these arsenals cannot be safely located at the South, the operations of the Ordnance Department will of necessity have to be discontinued there.

The arsenal was located at Charleston as the best position in that State to furnish arms to a large population and to put it in part under their protection.

The arsenal at Augusta, Ga., was located for like reasons. It is in the midst of the large white population of the county and city, with its organized volunteer companies, &c. I do not know a better position in the South for an arsenal than Augusta. The high, dry climate makes it particularly suitable for a powder depot, as well as arms of every description. Charleston is too damp.

I propose, therefore, to the War Department to reoccupy the arsenal at Augusta, in accordance with the law of May 20, 1826, and the laws establishing the Ordnance Department. The law which has established this arsenal is very clear, and I do not see how the arsenal can be diverted from the purposes of the law and converted into a garrison for troops of the line, unless the War Department shall be of opinion that the law cannot with propriety and a due regard to public safety be executed, and that an arsenal cannot be located there. If a military guard be required at Augusta, the enlisted force of the Ordnance Department can supply it to such extent as may be deemed requisite. The company of artillery lately stationed at Augusta Arsenal is ordered to Florida. I do not suppose it will be required long for that service. On its return, I would propose that it or some other company now armed as field artillery should be sent to Fort Monroe, to perfect, in concert with Colonel Huger, of the ordnance, the equipment of a howitzer and rocket company. It is important that our Army should understand practically the use of these weapons. Some high military authorities anticipate great results from them in the art of war and important changes in the armament of troops.

Fort Monroe has empty barracks, and Captain Roland is an intelligent officer, fitted to be employed on this important duty. Fort Monroe furnishes excellent ranges for artillery and rocket practice on the beach.

I am, sir, &c.,

GEO. TALCOTT,
Bvt. Brig. Genl., Colonel of Ordnance.

Hon. GEO. W. CRAWFORD,
Secretary of War.

[Letters to W. D., vol. 9, p. 404.]

ORDNANCE DEPARTMENT,
Washington, August 16, 1849.

SIR: During a number of years past the efforts of the Ordnance Corps have been directed, under the orders of the War Department, to the preparation of a system of artillery for the land service of the United States. I respectfully present for your approval the result of our labors, which, except in a few particulars, are now completed, and, when sanctioned, will govern in all constructions by this department and establish uniformity therein.

I am, sir, &c.,

GEO. TALCOTT,
Bvt. Brig. Genl., Colonel of Ordnance.

Hon. G. W. CRAWFORD,
Secretary of War.

[Indorsement.]

WAR DEPARTMENT, August 16, 1849.

The system of artillery for the land service, prepared by the Ordnance Department, is approved, and will be adopted.

GEO. W. CRAWFORD,
Secretary of War.

[Letters to Ordnance Officers, vol. 11, p. 95.]

ORDNANCE DEPARTMENT,
Washington, September 19, 1849.

SIR: I have to acknowledge the receipt of your letter of the —— September, concerning armory inspectors, and in reply thereto to state that the law establishing the national armories, act of April 2, 1794, section 2, authorizes the employment thereof of "as many workmen as the Secretary for the Department of War shall from time to time deem necessary," limiting the whole number to one hundred, which limitation is repealed by the act of April 23, 1808, section 2. Among the "workmen" employed by virtue of this authority I find that inspectors at the national armories are recognized by the Ordnance Regulations, articles 28, 34, and 35, and by the act of August 23, 1842, section 2, the latter fixing their compensation at \$800 per annum. There is nothing, however, in the law or regulations requiring that any specific number of inspectors, or that any inspectors at all, shall be employed. The law leaves it to the discretion of the Secretary of War to authorize or forbid their employment, as in his judgment may be advisable. I would therefore suggest that the commanding officer of the armory submit the question of discharging those "inspectors" now in employment (naming them) to the War Department, through this office, dispensing with the services of inspectors entirely, on the ground of economy, and for such other reasons therefor as may exist, and assigning their duties to foremen or workmen paid by the day. When the subject is thus brought to the notice of this department, it will be submitted with proper information and explanations in the case to the Secretary of War.

I am, sir, &c.,

WM. MAYNADIER,
Captain of Ordnance, in charge of Ordnance Bureau.

Lieut. J. G. BENTON,
Harper's Ferry Armory.

[427 W. D., 1849.]

ORDNANCE DEPARTMENT,
Washington, October 1, 1849.

SIR: The inclosed letter from Major Symington is respectfully submitted to you with the recommendation that the authority therein requested may be granted to him. In further explanation of the subject, it may be stated that, by the acts of 2nd April, 1794, and 23rd April, 1808, there are to be employed at the national armories "as many workmen as the Secretary for the Department of War shall, from time to time, deem necessary." Among the workmen thus employed, *inspectors* are recognized by the 34th and 35th articles of Ordnance Regulations, published by the War Department in 1839, and also by the 2nd section

of the act of 23rd August, 1842. This act fixes their compensation at an annual salary; but there is no law or regulation requiring that any specified number of inspectors, or that any at all, shall be employed. Their employment heretofore and at this time is by the general authority conferred by the two acts of 1794 and 1808, before referred to. None are employed at Springfield Armory, their duties being performed by foremen and subinspectors on daily wages; by the latest return from Harper's Ferry Armory (for August) there were five inspectors in employment there.

Very respectfully, your obedient servant,

• WM. MAYNADIER,

Captain of Ordnance, in charge of Ordnance Department.

Hon. GEO. W. CRAWFORD,

Secretary of War.

[Inclosure.]

HARPER'S FERRY ARMORY,

September 29, 1849.

SIR: I find it necessary to apply for authority to discharge the present inspectors at this armory, and to substitute foremen on *daily wages* in their room, as a measure alike conducive to economy and to greater efficiency in the operations at the establishment.

The inspectors, holding their places under the old system, have learned to look upon their appointments as for life, and have, many of them, grown old in their positions, and I consider it very desirable to have in their stead younger men, more efficient and active in their habits, to secure an accountability and regularity which it seems impossible to procure with those whose prejudices and habits are altogether of another character.

I am, sir, very respectfully, your obedient servant,

JOHN SYMINGTON,

Major of Ordnance.

To BRIG. GEN. GEO. TALCOTT,

Ordnance Office.

[Indorsement.]

The proposed mode of inspection is approved.

G. W. CRAWFORD,

Secretary of War.

OCTOBER 3, 1849.

[Letters to Ordnance Officers, vol. 11, p. 113.]

ORDNANCE DEPARTMENT,

Washington, October 10, 1849.

CIRCULAR.

The last sentence of the circular from this office of 3d of July last is modified as follows:

One of these receipts will be sent immediately to this office, and will be charged in the next account current as follows: To amount deposited

with assistant treasurer, per his receipt sent by me to Ordnance Department — of —, 1849; and so on for each deposit made within the quarter.

I am, sir, &c.,

WM. MAYNADIER,
Captain of Ordnance, in charge of Ordnance Department.

Copy of the above to all officers commanding arsenals and ordnance establishments.

[Senate Docs., 1st session, 31st Congress. vol. 1, Doc. 1, page 355.]

ORDNANCE DEPARTMENT,
Washington, November 1, 1849.

SIR: I have the honor to present the following report of the operations of this department in the discharge of its duties during the past fiscal year. These duties are, in general terms, to provide and furnish all "ordnance and ordnance stores," of every description, required for the troops and for the permanent fortifications and other military posts of the United States, as well as the annual supplies for arming and equipping the whole body of the militia. They include the preparation of estimates for these objects; the direction and supervision of all expenditures therefor, and of all operations at the United States armories, arsenals, and ordnance depots; the care and preservation of all military supplies and other public property at these places; the examination of all requisitions for arms, ammunition, and other "ordnance stores" for the public service; the ordering of proper quantities of them to the different points where wanted, with the transportation and delivery of those furnished to the States and Territories, and the enforcement of a proper accountability, according to regulations, of all property of this description belonging to the United States. As the particular operations of the year can be more conveniently stated and more readily referred to by placing them under their appropriate heads, they will be so arranged in order, as follows:

FUNDS.

Amount, as per last year's report, undrawn from the Treasury on the 1st July, 1848	\$342,317 36
In hands of disbursing officers, same date	87,391 64
Amount of appropriations for the fiscal year 1849, including the fixed annual appropriation for arming and equipping the militia	1,202,488 00
Received during the year for sales, rents, damages to arms in hands of troops, and all miscellaneous sources	261,607 27
	<hr/> 1,893,804 27 <hr/>
Amount of expenditures during the year	1,186,814 98
Turned into the Treasury, being a balance in an officer's hands not required for disbursement	376 46
In hands of disbursing officers 30th June, 1849	196,713 42
Remaining in Treasury undrawn 30th June, 1849	509,899 41
	<hr/> 1,893,804 27 <hr/>

The expenditures during the year from the different appropriations are stated hereafter, under their separate heads as they occur in this report. The amount reported as received from sales, &c., is far greater than has been heretofore derived from these sources. The great increase

during the past year is owing to sales, in accordance with the act of March 3, 1825, of unserviceable ordnance stores damaged during the war with Mexico and not worth the cost of repairing, and of flint-lock muskets not suitable for alteration to percussion, or for the public service in their present form.

There has been no delinquency among the disbursing officers of this department in rendering their accounts as required by law and regulations.

ARMAMENT OF FORTIFICATIONS.

The operations of the department in this branch of its duties have consisted chiefly in increasing the supply of gun carriage timber; the fabrication of casemate and barbette carriages, where properly-seasoned timber was on hand; the repair and preservation of the armament at the forts, and such additions thereto as were requisite for the instruction of their garrisons in the use of heavy artillery.

Owing to the rapid decay of gun-carriages at forts, where they are necessarily more or less exposed to dampness in casemates, or the effects of the weather when mounted in barbette, and where the frequent withdrawal of garrisons prevents proper attention to their preservation, it is not deemed advisable to place at them more mounted artillery than will serve for drilling the troops and for saluting batteries. It is thought better to keep the carriages and implements at the arsenals, where they can be properly stored and attended to, so as to be ready on any emergency that may call for it, to supply a proper armament in good order for service. To arm the forts fully with mounted artillery would not only occasion loss by rapid decay of the carriages and the expense of frequent repairs, but might lead to serious disasters by causing reliance to be placed on the amount of the armament in position, when its condition might render it useless for service. It is the aim of this department, therefore, to provide and lay up materials for the construction of carriages and other articles required for the armament of fortifications, rather than to finish and put this armament in place.

Among these materials, that of primary importance is carriage timber. With an ample supply of this on hand, in proper condition for working, it would be an easy matter to furnish carriages at short notice in the best order for use. Timber requires at least three years' seasoning before it is fit for use in constructions of this kind, and is much improved by allowing it to remain five years for the purpose. It would be difficult, if not impossible, to procure it on an emergency of suitable quality and in sufficient quantity.

But few cannon and projectiles for forts have been provided during the year. The limited amount of the appropriation and the more advantageous application of the available means to the procurement of other articles, did not admit of extensive orders to the foundries. A new method of casting iron ordnance, devised by an officer of this department, which promises to render such guns stronger and more durable, is now being tested under the immediate supervision of the inventor, aided by a practical and experienced founder. The result is not yet known; but should it confirm the very reasonable theory of the inventor in regard to this mode of casting, it will effect a valuable improvement in iron cannon.

The expenditures during the fiscal year from the appropriation for armament of fortifications amount to \$101,908.26. The principal articles procured by purchase and fabrication at the arsenals are the following, viz: 81 iron howitzers for flank defense; 1 howitzer casemate carriage;

100 columbiad casemate upper carriages; 52 columbiad casemate chassis; 92 32-pounder casemate chassis; 12 32-pounder barbette carriages, complete; 14 24-pounder barbette carriages, complete; 1 8-inch sea-coast howitzer barbette carriage, complete; 1 8-inch sea-coast howitzer upper carriage; 1 casemate truck; 70 10 and 8 inch shells; 37,107 cubic feet of gun-carriage timber.

There have been sent to the forts during the year 17 cannon and 42 carriages.

ORDNANCE, ORDNANCE STORES, AND SUPPLIES.

The operations performed under this head are the preparation and supply to the regular troops of siege, field, and mountain artillery, with their carriages, ammunition wagons, forges, ammunition, implements, and harness; of all accouterments and side arms, and of rifles and cavalry pistols. The expenditures from this appropriation during the year amount to \$247,302.72. The principal supplies procured by purchase and fabrication are the following, viz: 19 carriages for mountain artillery; 4 sets of harness for mountain artillery; 48 sets of harness, each for four horses; 4,000 hammers for percussion-cannon locks; 32 India-rubber tarpaulins; 331 shells of different calibers; 125 spherical case shot, strapped; 500 stands of canister shot; 1,290 rounds of fixed ammunition for field guns; 300 flint-lock muskets (altered to Maynard's percussion plan); 2,400 percussion rifles; 300 dragoon carbines; 1,500 percussion pistols; 740 Colt's pistols; 2,410 sabers for cavalry and horse artillery; 1,014 non-commissioned officers' and musicians' swords; 1,000 riflemen's knives; 676 cartridge-boxes; 5,521 bayonet scabbards with frogs; 2,254 belts (waist and cartridge-box); 500 gun-slings; 2,908 percussion-cap pouches; 2,580 saber belts; 1,361 saber knots; 120,330 cartridges for small arms; 8,939,000 percussion caps for small-arms; 25,141 pounds of lead; 21,490 cubic feet of timber for carriages.

Statement C, hereto annexed, shows the quantities and kinds of arms, ammunition, and other ordnance supplies furnished to the United States troops during the year ended June 30, 1849. During the same time, emigrants to California, Oregon, and New Mexico have been supplied, under the resolution of Congress of 2d March, 1849, with arms and ammunition to the value of \$9,344.83.

NATIONAL ARMORIES.

The expenditures at the national armories during the fiscal year have been as follows, viz:

	Harper's Ferry.	Springfield.	Total.
For the manufacture of arms, appendages, tools, &c., and purchase of materials for the same	\$168, 184 14	\$186, 006 87	\$354, 191 01
For repairs, improvements, and new machinery, including lands, buildings, dams, &c	55, 674 70	59, 820 96	115, 495 66
Total	223, 858 84	245, 827 83	469, 686 67

The manufactures at Harper's Ferry Armory for the year include 8,300 percussion muskets and 1,925 percussion rifles, with 45,043 appendages for the same, consisting of extra cones, ball-screws, screw-drivers,

spring-vises, wipers, and bullet molds; 278 flint-lock muskets have been altered to percussion, and 46,930 hammers, cones, and screw-drivers for muskets to be thus altered, have been made.

At Springfield Armory there have been manufactured 15,215 percussion muskets and 1,000 cavalry musketoons, with 39,323 appendages for the same, consisting of like parts with those before mentioned.

Considerable additions have been made at both armories to the machinery and tools for facilitating and economizing work. But part of the amount expended on this account, and none of that for materials purchased but not used during the year, is properly chargeable to the cost of the arms made in that period. The actual cost of the finished musket, including materials, workmanship, inspection, and supervision, has been \$9.87 $\frac{3}{4}$ at Springfield Armory, and \$12.72 at Harper's Ferry. The difference is attributable in great measure, if not entirely, to the greater amount and better quality of machinery and buildings at the one armory than at the other. Improvements in both respects are being made at Harper's Ferry Armory as fast as the means available will admit, and, when completed, there will be no good reason why the reduction in the cost of finished arms may not be as great at this as it has been at the other armory. Since the armories have been under the exclusive management of this department, and superintended by officers of the Ordnance Corps, there has been an annual diminution in the cost of manufacture; and figures will bear me out in asserting that the difference of cost of the number of arms made during the last year, and that of the same number and quality under the former system of superintendence, will amount to more than the pay and emoluments of all the officers of the Ordnance Corps. At the same time, the rates of wages have been fair; the workmen never receiving less than similar services and skill would command in private employment.

The arms, appendages, components, &c., made, the new machinery provided, buildings erected, and other work done at the armories during the year, are more particularly stated in the reports of principal operations by the commanding officers of these establishments, hereto appended, to which reference is made for more detailed information respecting them. The estimate for the manufacture of arms for the next year contains the amount usually appropriated for that purpose. That for repairs and improvements includes the amount required for keeping the buildings and other public property in good order, and for pursuing the system of improvements necessary for placing these establishments on the best footing for manufacturing to advantage. The objects to be effected are separately stated, and the reasons for each explained in the estimate.

ARMING AND EQUIPPING THE MILITIA.

From the standing appropriation for this object are defrayed the expenses of procuring and delivering to the States and Territories, on requisition from the proper authority thereof, such arms and equipments of the prescribed patterns as may be due. The quota of each is annually apportioned at this office under the act of 1808, according to the number of militia included in the returns made to the Adjutant General of the Army. Some of the States, as will be seen from the statement (A) hereto annexed, have not made returns for many years; and as these returns are the only data from which the supplies for each State can be determined, they continue to receive according to the number of militia

last reported, which is probably much less than the actual number would entitle them to. Moreover, the method of arriving at the aggregate militia force is not uniform throughout the States. For these reasons it is obvious that the actual issues do not give, as required by the 3d section of the act of 23d April, 1808, "to each State and Territory, respectively, in proportion to the number of effective militia in each;" nor is it probable, judging from past experience, that sufficient accuracy and regularity in the returns to regulate the issues as therein required can be attained. It is, therefore, suggested as a better method of apportioning the arms and equipments to the several States and Territories, that the annual quota of each be according to population or to representation in Congress. This will, of course, require a change in the existing law.

The amount expended during the year from the appropriation for arming and equipping the militia is \$173,709.33. The principal articles obtained on this account by purchase and fabrication at the arsenals are as follows, viz: 74 carriages for field-guns; 7 caissons; 4,840 percussion rifles; 1,200 carbines; 3,750 percussion pistols; 2,430 cavalry sabers; 1,000 non-commissioned officers' and musicians' swords; 2,000 saber belts for cavalry and artillery; 1,450 cartridge boxes; 500 pairs of holsters; 500 slings and swivels; 2,000 copper flasks for riflemen.

The apportionment of arms and the issues to the militia during the last year are shown in the annexed statements, A and B.

ARSENALS AND DEPOTS.

The whole number of arsenals and ordnance depots, including temporary depots, has been during the year twenty-eight. Of these, the depots at Point Isabel and Galveston, Tex., and at Fort Leavenworth, Mo., established during the Mexican war, have been recently, by your orders, broken up. There are four arsenals of construction, viz, at West Troy, N. Y., Pittsburg, Pa., Washington, D. C., and Old Point Comfort, Va., at which, besides being depositories like other arsenals, the greater part of the ordnance supplies, excepting small arms, are fabricated. The next in importance are the arsenals of deposit and repairs, where arms, ammunition, and other ordnance stores are received, taken care of, and issued, and where small arms, gun-carriages, implements, &c., are repaired and put in good order. Some of these arsenals are also used for construction on a small scale, when occasion requires. The depots are mainly places for the proper storage and preservation of ordnance and ordnance stores, but are also provided with the means of repairing and cleaning arms and of preparing ammunition. All arms and other ordnance supplies for the land service not in use by the Army are placed at these arsenals and depots, and so distributed among them as it is thought will best secure their safety, and at the same time be most convenient to meet the wants of the service, so far as they can be foreseen. A careful examination of all articles in store at the armories, arsenals, and depots is made annually, and inventories of the same, including lands, buildings, and all public property, are prepared and forwarded to this department. These inventories exhibit each article that has been received at any of the arsenals during the year, and how obtained; each article that has been taken therefrom, and how disposed of; with the condition and number or quantity of each remaining on hand, and its money value. The following aggregates of value in money

are exhibited by the inventories for the year ended the 30th of June, 1849:

Lands, magazines, storehouses, quarters, barracks, workshops, and machinery	\$4, 536, 269 61
Artillery of every description, with carriages, implements, and projectiles	2, 650, 468 84
Small arms of every description, with their appendages and accouterments	7, 973, 236 84
Ammunition of all kinds, including powder and materials for its manufacture	1, 110, 208 74
Component parts of artillery carriages and equipments, and of small arms and accouterments	336, 446 45
Gins, carts, implements, and tools of every description, in use or current service	344, 691 45
Unwrought materials and tools in store	664, 790 30
	<hr/> 17, 616, 112 23

At each arsenal is stationed a detachment of enlisted men for guard and police duties, and such mechanical employments as the skill of these men fits them to perform. They are uniformed, armed and equipped, instructed in military exercises, and perform the same duties at the arsenals as garrisons of similar strength do at other posts; when not on duty as soldiers they work in the shops. The average number of enlisted ordnance men in service during the year has been 489; by the latest returns received (viz, for September), it was 484. For constructions and fabrications requiring a higher order of mechanical skill, regular artisans are employed by hire at daily wages, their number varying according to the work to be done, and their compensation being fixed on the principle of that paid for similar services and skill in the vicinity of the arsenals where they are employed.

The amount expended from the appropriation for "arsenals" during the year has been \$88,854.96. These expenditures have been strictly applied to the execution of the objects specially designated in the estimates on which the appropriation was based. They include repairs and preservation of public buildings, fences, wharves, &c., the erection of new and additions to old buildings, and all improvements of a permanent character. The statements of operations at the principal arsenals reported by their commanding officers, and hereto appended, are referred to for a more particular account of the work done under this head. The estimate for the next fiscal year is based on special estimates rendered by the commanding officers of the different arsenals. These estimates have been considerably reduced, after examination at this office, and only the most important objects have been included in the general estimate prepared here.

The extension of our territorial limits by the late acquisition of new countries calls for the construction of additional permanent arsenals or ordnance depots for the preparation or deposit of military supplies at places convenient to their inhabitants. Four of these should be commenced as soon as proper sites are selected for their location: one in Texas, one in New Mexico, and two on the Pacific coast—in California and in Oregon. I respectfully suggest that application be made to Congress, at its next session, for the proper legislation to authorize the building of these four arsenals, and for an appropriation of \$100,000, to be expended under the direction of the War Department, for defraying the expenses of selecting sites, the purchase of land, if necessary, and to commence the erection of suitable buildings.

During the past year an officer of the corps was despatched to Europe to obtain information connected with the manufacture of arms and the

preparation of military supplies, in which this department is immediately, and the country generally interested. His report, giving much valuable information which could have been collected only by close observation by a practical officer, is hereto annexed, and bears indisputable evidence of his zeal and judgment in obtaining a knowledge of the various subjects of inquiry.

G. TALCOTT,

Brevet Brig. Gen., Colonel of Ordnance.

Hon. GEORGE W. CRAWFORD,
Secretary of War.

BREVET MAJOR HAGNER'S REPORT.

WASHINGTON CITY, October 25, 1849.

GENERAL: Having reported my return from Europe within the time prescribed by your orders of the 9th of October, 1848, I have now the honor to submit the accompanying notes of observations made during my absence upon the subjects to which my attention was therein specially directed, as well as "such information as I could procure upon the systems of artillery and of the armament and equipment of the troops," in the countries I visited. A person of limited experience traveling *alone* among so much that is different from what he has been accustomed to at home, must needs be frequently perplexed by the desire, on the one hand, of reaping for his service all the advantages the opportunities afford, and by his fears, on the other, that much of what he notes may be considered by those better instructed unimportant. Laboring especially under this disadvantage myself I must pray your indulgence to this report—due to me further, as the period of my visit to Europe was particularly unpropitious for a minute professional examination. Most of the experiments usually in practice upon subjects interesting to the artillery had been suspended; and, in some cases, the establishments of that corps closed to foreign visitors, owing to the political disturbances which have existed during the last two years in nearly all the continental states. But while claiming all reasonable indulgence on this account I must not neglect to call your attention to the many instances in which I have been favored with the polite attentions of artillery officers in furtherance of the objects of my visit and the complimentary terms in which they have spoken of the practical operations of *our artillery* and of the published report of ballistic experiments recently made at the Washington Arsenal. The few publications upon these subjects by our officers and the unfrequency of intercourse (by officers) have kept them very ignorant of the actual condition of our artillery, and especially of the mechanical advances we have made of late years, so that I found them generally anxious to know details of our fabrication and surprised at the results we have obtained. The report will show how much more general with us is the use of machines and the advantages we have gained thereby in accuracy and neatness of work; and also the skill and economy *they* have been able to introduce in their fabrications, and the progress they have made, in many instances, in the science of artillery. The advantages thus derived by them from their well directed *schools of practice* and the constant interchange of results by the *publication of experiments* will prove the necessity of similar efforts upon our part, and *especially* that of spreading among our officers the details of the many valuable experiments reported annually to the Ordnance

Office. Such a course would early secure to us the practical advantages of proposed improvements, which now come more tardily, after being matured abroad.

I cannot refrain from expressing the gratification derived from comparing the general condition of our arsenals and armories (as well in the machinery used and the character of the work done as in the comfort and well being of the workmen and the cleanliness and neatness of the establishments) with the most advanced of those abroad. The superiority in these respects is generally with us; and in every case one cannot fail to remark that the absence of official responsibility in the management of these establishments has, *as a result*, the absence of comfort, cleanliness, and care for the workmen.

In order to give the fullest information upon the manufacture of *percussion powder* and *caps* and that of *small arms*, I have not confined my remarks upon these subjects to the places particularly directed in your orders, but have mentioned the details of these operations as pursued at the establishments of France, Belgium, Holland, and England. Such peculiarities as I noticed in the different arsenals and in the armament and equipment of troops then follow, and a few remarks upon other subjects, generally interesting to military men, conclude the report. In the description of machines and modes of fabrication, I have endeavored to be sufficiently explicit to make these notes practically useful, as they are; but I can, I think, furnish any other necessary detail which I may have omitted in my desire not to be unnecessarily prolix.

I have purchased for the office some few publications upon military subjects which I thought would be useful, and have made arrangements to receive information of the future appearance of any others of professional interest.

The infantry officer's saber, in the French service, was spoken of so highly by the corps who had used it most, that I thought it best to purchase one for trial. The chronograph (for use in experimenting), greatly improved by a very simple marking apparatus, will also, I am sure, prove very useful.

Hoping that my efforts, earnestly made for the advancement of the service, may be productive of some good, and that you may not regret the high honor you did me by selecting me for this duty, I beg, most respectfully, to subscribe myself your obedient servant,

P. V. HAGNER,

Brevet Major and First Lieutenant of Ordnance.

General GEORGE TALCOTT,
Chief of Ordnance.

NOTES.

PERCUSSION CAPS—FRANCE.

There is but one capsuline in France; it is under charge of a major, with two captains as assistants, and embraces the establishment for making caps and friction tubes at Paris, and that for filling and finishing them at Montrenil, about nine miles distant. Major Didion, the director, was kind enough to accompany me through the first and to give me an order for entrance into that at Montrenil.

The copper is bought in sheets at 2.50 francs the kilogram (about 21½ cents per pound), and the scraps are exchanged for new at 35 cent-

imes (about $6\frac{1}{2}$ cents) the kilogram, additional. The sheets are cut into strips and rolled by machines moved by steam power, then annealed in a furnace, washed in acid and water, and transferred to the cap room. The machines here used are worked and fed by hand. *Three* are required to complete the cap—the *first* cutting the stars, the *second* forming the cup, and the *third* pressing down the flange and clipping the points to a length. The first machine it is said can cut 83,000 stars per day of 10 hours. The caps are then rolled in a barrel with saw dust, which cleans and polishes them, and sent to Montreuil. Here the first operations for making the fulminate are conducted under a shed open to the south. Three hundred grammes of mercury are dissolved in a glass mattress containing 2.3 liters of nitric acid at 40° by means of a sand bath. When dissolved the solution is poured into a large glass vessel containing 3.3 liters of alcohol. This vessel, of a capacity of about fifteen gallons, has a mouth about four inches diameter and a nozzle of the same diameter; tightly luted to this last is a glass tube three inches diameter, six feet long, covered with zinc, inclined to the ground at an angle of about 15° . In the interior of this large tube a small glass tube runs down and back, conveying water from a reservoir above, which is discharged at the highest end after passing through the tube, thus cooling the fumes which fill the large tube. The lower end of the large tube is luted to the nozzle of one of a system of earthen jars arranged side by side in the open air, which are connected by means of short tubes tightly luted to the adjacent nozzles (each jar having two nozzles and a mouth). Ten are usually employed, but sometimes more; the last jar has one nozzle left open for the escape of the uncondensed fumes. With ten jars, some deposit of alcohol and mercury is made in the tenth, but only about one-sixth of that made in the first. The alcohol used was said to be of a strength of 39° , and that condensed about 35° or 36° . This alcohol is used in checking the ebullition in the glass jars toward the end of the process. In every 100 kilograms of mercury used two kilograms are saved by condensing the fumes, and 35 per cent. in *quantity* of the alcohol. One kilogram of fulminate (in addition) is obtained from each kilogram of mercury.

The fulminate is placed in earthen pans to be washed and drained; the pans have a hole in the bottom plugged loosely with flannel. After being well washed, it is placed in glass bottles, with water, and carried to the mixing-house—a frame building of one room. Here the unabsorbed water is carefully skimmed with a wooden spoon, from a portion of fulminate, sufficient (with the proportion of niter) to make one kilogram in weight. The mixture is made on a marble table, with a horn spatula, and the mass formed into a cake and placed upon a sheet of thick brown paper. These papers are taken to the drying and sifting-house—likewise a frame building of one room, fifty yards distant—and the cakes are there broken up while moist, and spread to dry upon shelves, each cake on its sheet. After partial drying the powder is passed through a copper-wire sieve by hand (covered with a thick leather glove), then replaced upon the shelf to dry; and when dry enough to be pulverized is passed through a horse-hair sieve. This last sifting is done upon a table surrounded above with curtains, the front curtains having sleeves for the passage of the hands; the workman is thus protected from the dust. The powder is then collected in covered wooden boxes and taken to the filling-room. The sifting-room is kept at a temperature of 15° centigrade, being heated when necessary by a stove projecting within the room, but fed from without. In the mixing-room were about one hundred pans of moist composition, and in the drying-room more than

a hundred kilograms of powder in the different stages towards completion. Sometimes (the workman said) there was even more there, as no orders exist limiting its accumulation. The mixer is a man, receiving four and a half francs a day; a man also aids the master in making the fulminate; but the attendant in the drying-room is a woman, who, alone, pulverizes and sifts the powder, receiving but thirty-six sous a day. In the charging room are three women and one man; two of the women fill the receivers with empty caps, passing them to the third, who charges the caps by means of a charger with a sliding-bottom, one hundred at a time; she hands the charged receiver to the pressman, who, placing upon it a cover with points entering the caps, passes the two through a press, the jaws of which are of quadrant form; these revolving a quarter revolution, by means of a crank moved by the man, take with them the receiver, delivering it on the opposite side, the caps equally pressed. He empties the receiver into a trough, conveying the caps (over a tub of water to absorb the dust) into a covered reservoir. From here they go to the varnishing-room; in this room are women only. Boards containing five hundred caps are used; with a drop-tube a drop of varnish is deposited in each cap; after half an hour the board is again examined, to spread the varnish and take off the surplus, if necessary. The caps are then counted into linen bags containing 20,000, half at each end of the bag, and removed to the drying-room; this is of brick, heated by a stove, with racks suspended from the ceiling; the bags are swung upon the racks and exposed for forty-eight hours to a heat of 50° centigrade. They are then placed in bags of 10,000, marked with the date of manufacture, and after inspection by a board of officers (which assembles from time to time), the bags are sealed and stamped, and sent to the castle of Vincennes to be stored. The cost of the fulminate is said to be 22 francs the kilogram (\$1.89½ per pound); and of the finished caps, 94 cents a thousand. No accident has ever occurred here.

Friction tubes.—These are formed of two pressed copper tubes and a brass wire tongue. The smaller tube (containing the friction powder), with the wire tongue attached, is placed within the larger one, charged with rifle powder; the upper end of which is *choked* to prevent the passage of the small tube, but not wire; both ends of the large tube are then closed with wax. Upon pulling upon the wire its roughened end passes through the small tube, igniting its charge, and thence that of the other tube. The metal part is made at the establishment in Paris; the larger tubes being formed from disks of sheet copper one and a quarter inch diameter, by pressure in nine different machines, and the smaller ones, from ends of these, by four additional machines. Several other machines are used in completing them, all moved by hand. The metal parts, finished, are sent to Montreuil, and there filled, in shops distinct from the cap shops. The friction powder is composed of two parts of sulphuret of antimony and four parts of chlorate of potassa. This can be used with safety, and costs only five and a quarter francs per kilogram. The finished tube is said to cost twenty-five sous the hundred. These tubes are manufactured in great numbers, and are to replace the use of the lock.

PERCUSSION CAPS—BELGIUM.

The caps are made at the arsenal in the town of Liège, and, after examination by a board of officers, are issued to the director of the laboratory, who is charged with the preparation of all ammunition. The cap

machine-room, at the arsenal, contains six machines (two cutters and four punches) moved by steam power, and capable of making 100,000 caps a day. The copper having been cut into strips and rolled, the strips are fed by hand into the cutting machine; double dies cut two stars at once; the stars are then examined and passed by hand to the punch machine, which forms the cap and cuts, at the same time, the points to a length. The caps are again examined and counted by means of filling boards, and placed in boxes ready for inspection. The cap filling-shops are detached from all other work; the different buildings required being upon the terrepleins of the advanced works of the citadel separated from each other by traverses, where more than one is in the same angle of the work. The operations had been conducted here for eight years without accident; but soon after my visit I heard of a slight accident having occurred, the particulars of which, by the kindness of the director, I am enabled to give, attached hereto, in a translation of his report.

In making the fulminate the proportions used differ slightly from the French: 4.500 kilograms of nitric acid at 36° , 0.450 kilogram of mercury, dissolved in a mattress on a sand bath, is poured into a large glass retort containing 5 liters of alcohol. Nine condensing vessels are attached to the retort, and the last of the series to the chimney of the house in which this operation is conducted. No water is used in assisting the cooling. The retort contains, after the fumes have passed off, 700 grams of moist fulminate, or 500 of dry; and the product of the condensation is 2 per cent. of mercury and a quantity of alcohol, which (after being conveyed to a tank outside of the house and treated with lime to extract the acid) gives 20 per cent. of the quantity used, of greater strength than it by 4° . This alcohol is preserved for making varnish, being found to be more advantageous for this purpose than the alcohol of commerce. The moist powder, with its proportion of niter, is mixed upon a round marble table with high edges by means of a pair of rakes and a pair of scrapers attached to a vertical arbor, and moved by gearing connected with a hand-wheel in a detached building. The object desired being a mere mixing of the material *without compression*, the rakes level the piles raised by the scrapers without touching the marble. The charge upon the table is 1.850 kilogram of moist fulminate, 0.666 kilogram of niter, 2.000 kilograms of dust from previous siftings, as explained hereafter.

No one is present in the room during the mixing. The motion is continued for 30 minutes, and the powder is then transferred to pieces of oiled silk and carried to the drying-house, where the pieces of silk are placed, with their contents, upon hot water dishes, made of zinc, about 2 feet square. When sufficiently dry to be pulverized, the powder, enveloped in the silk, is removed to the sifting-house, and the above charge divided into two portions, each placed in a sieve with a parchment bottom, having holes of the size of fine rifle powder. With the powder is placed in each sieve a circular beater, made of wood, covered with leather; weight, 1 pound; diameter, 8 inches; thickness in the center, $1\frac{1}{2}$ inch; sloping towards the periphery. The sieves, having covers about their size fitting upon them, fit, as covers, upon other sieves with bottoms of silk cloth, which themselves fit upon boxes with solid parchment bottoms. All the rims are tightly covered inside and out with leather, and each set of 4 pieces bound together with straps; other straps are attached to connect them to the sifting-frame. This consists of a horizontal hoop, with arms, made of $\frac{3}{4}$ -inch iron, about 8 feet diameter. It revolves with a vertical arbor having a double crank, supported in

sockets at the floor and ceiling, and connected below the floor by band gearing, with a hand wheel in a detached building. An up and down motion is given to the hoop, while revolving, by means of cords from the arms to the ceiling. The two sets of sieves are fastened to the frame at opposite ends of the same diameter. After fifteen minutes' turning all the powder will have descended from the top sieve, and the dust have passed through the silk to the bottom box. This is put away to be used again in the batch for mixing (in the proportion above stated), and the *grain* powder remaining upon the silk is placed in straw-covered glass bottles and deposited in the magazine for use. The impression is that the dust powder is not suitable for filling caps. The charging-house consists of a large room, with an ante-chamber and a small *hopper shed*, abutting against the large room, but separated from it by a thick plate of sheet iron. In this shed is the hopper, capable of containing about $\frac{1}{2}$ pound of percussion powder; its sliding bottom is opened by a treadle, the foot of which passes through the iron plate into the large room. To fill the hopper the attendant enters by the door of the shed; and to charge the caps, a receiver of the ordinary kind, containing 56 empty caps, is placed by hand under the hopper through a second hole in the iron plate in a proper position for this object; and, by touching the treadle and then moving an arm, the proper charge is deposited in each cap, and the bottom of the hopper again closed. The receiver is then passed to the pressman, who applies the cover, with its 56 points fitting in the caps, and places it under the press, the power of which is estimated at 10,000 kilograms. There are two presses in this room, working vertically by means of cranks in the ante-chamber, each revolution of the crank bringing down and lifting up the piston. After pressing the cover is removed and the receiver passes to the varnishing table; there it is placed in the bed of a small machine constructed so as to bring 56 points (from a reservoir of varnish into which they dip) over the 56 caps. The caps are then withdrawn from the receiver by a withdrawing-board and placed upon a drying-board, cup uppermost. When full these boards are placed upon shelves in this room and left to dry; 14 workmen, 2 non-commissioned officers, and an officer are usually present in this room. (All these men were present at the moment of the explosion of the hopper on the 24th of July last.)

Composition of varnish: Alcohol at 40° (95 per cent.), 135 parts; gum shellac, 40 parts; resin colophane, 10 parts.

For issue, the caps are packed in tin boxes containing 10,000.

Cost of 1 kilogram of fulminate, 27.20 francs—\$2.31 $\frac{1}{2}$ per pound.

Cost of 1 kilogram of percussion powder, 27.70 francs—\$2.35 $\frac{1}{2}$ per pound.

Cost of 1 kilogram of varnish, 1.70 francs—14 $\frac{1}{2}$ cents per pound.

Cost of 1,000,000 of caps (filled), 5,000 francs—\$912.50.

[Colonel Timmerhans told me that, when he commanded the laboratory, he had made 10,000,000 of caps to complete an order, and that the cost, including the interest upon the establishment, was only 3,450 francs per million, or 64 $\frac{6}{10}$ cents the thousand.]

PRIVATE ESTABLISHMENTS—LIÈGE.

Messrs. Falisse & Co. are large manufacturers of percussion caps and of the machines for making them. The plan pursued by them is said to be nearly the same as that of the government establishment. As their establishment was not in operation while I was in Liège I could not see it. They have not been so successful in avoiding accidents, the officers

told me, as they had been. Last year an explosion of the hopper took place, and slight accidents had occurred previously. Mr. Falisse told me that with thirty persons, twenty of whom were boys or women, he could make the powder and finish complete 150,000 caps per day; and that he could deliver them in New York at 94 cents the thousand. He said that he had recently returned from putting up a set of his machines in Spain, which they preferred to the *English machines*, made recently for them at Woolwich Arsenal. As in the machine already described, the stars are cut by *one* machine, and fed by hand to a *second*, which forms the cap.

PERCUSSION CAPS—SWITZERLAND.

Samples of these caps, made at Zurich, accompany this report. The manufactory was not visited. The star is cut into twelve points, and a thin disk of copper covers the powder instead of varnish. An accident occurred here in the summer of 1848, killing two men.

PERCUSSION CAPS—PRUSSIA.

The priming for the new musket is placed in the end of the paper sabot, upon which the ball rests. It is composed of one part sulphuret of antimony and six parts chlorate of potassa, moistened with a little gum arabic or tragacanth. The percussion cap for ordinary percussion arms is made at Erfurt, but the establishment was not visited. The powder is covered as in the Swiss cap, with a disk of copper without varnish.

PERCUSSION CAPS—HOLLAND.

The caps are made at the arsenal at Delft and issued to the director of the laboratory. The machines used are similar to those in use at Liège, in construction; but the one making the cap from the star did not work well in my presence, owing, they said, to the copper not being of good quality. The operations of making the powder and charging the cap are conducted, as at Liège, at a special establishment, at a distance from others, consisting of many buildings separated from each other by traverses of earth. Such differences only as were noticed in the course of the fabrication will be stated. The jars used in condensing the fumes are placed in tubs of water. The proportions used are as follows: 0.367 kilogram of mercury, 4.111 kilograms of nitric acid at 42°, 4.25 liters of alcohol at 30°; producing 0.546 kilogram of fulminate moist—100 parts of mercury giving 116 or 117 parts of fulminate. By condensation, 40 per cent. of alcohol at 30° and 3 per cent. of mercury are saved. 1.4 kilogram of moist fulminate, 0.6 kilogram of niter (first mixed with a horn fork upon an earthen dish), and the dust of former operations, to the maximum extent of 1.5 kilogram, gradually added, are transferred to the marble *grinding table*, where the mass is ground under a pressure of 180 kilograms for two hours by two heavy wooden rollers, followed by two scrapers; all moved by gearing from a hand-wheel in a detached building. An attendant stands by the table during this operation with a wet sponge, wiping up all the dry particles and keeping the material moist. After the grinding the paste is scraped from the table, made into a cake, and taken to another building where the cake is cut in small pea sized bits with a horn spatula upon a piece of oiled silk cloth. A temperature of 15° centigrade is maintained in this room (artificially, if necessary). When dry enough to pulverize, the ends of the cloth are folded over the material, all is placed in a box

covered, and carried to the sifting-room. This differs from that at Liège in having the arbor of the sifting-circle only two and a half feet high above the floor, with one elbow, and not connected with the ceiling. An attendant with a moist sponge is always ready to wipe up the dust which may be upon the sieves before joining them, or which may fall during the sifting. The grains of powder found on the silk bottom sieve are collected upon a sheet of paper and carried to the drying-house, and there the sheets are extended upon hot water dishes made of zinc, with sides and bottom enveloped in sheepskin with the wool on. The dishes are in boxes six inches high, open in front. The powder remains thus two days, the water being kept hot. It is then put into glass bottles, one and a half kilogram in each, and stored in the magazine. The dust collected in the bottom of the sieves is likewise bottled and stored till wanted. The magazine is a light frame building with windows, and used exclusively for percussion powder. The press and charging building is arranged as at Liège. The plate between the hopper-shed and press-room is of cast iron. The press, of different construction, extremely heavy, is said to give a pressure of 12,000 kilograms. The officer attending said it had been found that caps split more, and were more liable to throw out fragments, when filled with dusty powder, and that the great pressure used prevented a too ready explosion, and preserved the cap from being injured by moisture. Before varnishing some are tried by a *test drop*. A weight of one ounce falling two and a half feet *must* explode the cap; but if falling *one* foot (a force less than full cock), the cap must not explode. The machine for varnishing differed from that at Liège in making the receiver move instead of the plate with its points. After varnishing, the caps, placed upon boards cup uppermost, are removed to a drying-loft, where they remain four weeks exposed to a temperature of 36° centigrade. They are then packed in tin-boxes containing 10,000. The cost of 10,000, labor and materials included, is said to be 21½ guilders—about 84 cents a thousand. Fulminate costs 8 guilders (\$1.37½) per pound. 37 kilograms (82.65 pounds) charge 1,000,000. The prices above given are said to embrace a proper interest upon the expenses incurred in completing this extensive establishment. All the working-rooms are kept in the neatest order; the floors are carpeted and the workmen supplied with woollen slippers. Each workman has his particular branch, and he attends to nothing but that. A sergeant is master of each shop, and is obliged to be constantly present to see that the workmen act with proper care. No women or boys are employed.

Goossen's cap machine.—I was invited by the inventor to examine this machine and state whether it had been copied from that in use with us, as some rival mechanic had charged. It differs, however, in some points, from any I have seen, and promises to work well when finished. The copper, in strips, enters the machine vertically, being fed in by rack at each end of a lever arm, to dies, cutting the star and forming the cap (as with us); the cutters are attached to the ends of a swinging beam, and are moved by an eccentric, so that a star is cut and cap made alternately at *each end* of the beam, or *one* every half revolution of the crank. The punches act horizontally, and a piston pushes the finished cap from one matrix as the punch enters to form the cap in the other. This secures, as with us, a freedom from clogging, which seemed to annoy them greatly in the government machines. The inventor had conceived and partly matured a plan for combining the filling and varnishing operations with this machine, the only instance that I saw in Europe where the idea of such a combination seemed to have been entertained at all. He had

presented his views, he said, to the officers of the Dutch artillery, but they had not been received with encouragement.

PERCUSSION CAPS—ENGLAND.

The cap factory is under the general charge of the colonel commanding the gunners' stores department, Woolwich Arsenal; but the operations are conducted with those of pressing musket balls and preparing shells, in a special inclosure, which can only be entered (even by officers of the British army) in company with the officer in charge. Through the kindness of Colonel Dundas, I was permitted to accompany him through some of the shops. The machines for making the caps and those for filling them occupy two adjoining rooms; the mechanical and hand operations being more intermingled than in the continental establishments.

The sheet-copper of commerce is cut into strips wide enough to cut four rows of stars by machine shears; then passed through rollers, then fed by hand to the star-cutting machine, cutting two rows at once. The stars are then fed by hand to other machines, which complete the cap. They are then rolled in barrels with sawdust to clean and polish them ready for filling. For this purpose they are placed upon plates containing twelve dozen holes, in which the caps rest. These plates slide in a space under the top of the filling table; this is a polished metal plate, fenced around with holes corresponding with those on the others, and of a size to contain the exact charge for a cap, the bottoms closed by a sliding metal plate. The composition—a fine powder, *not in grains*—is spread with a wooden spatula upon the table, and the surplus, after filling the hole, is returned to the box; upon drawing the sliding metal plate to a stop, the mouth of each cap is uncovered, and by a blow upon the table the charge is deposited in each. The plate with caps then goes to the press table, where a pressure of fourteen pounds is, in turn, given to each row, the plate traveling by a rack movement, so as to bring the rows of caps under a row of pressing points moved by a hand crank. To varnish the caps, the plate is placed in its bed, upon another table, where, by similar machinery, each row is, in turn, brought into position to receive its proper supply from a row of points which travel from the varnish reservoir to this position, advancing the plate one row each return journey. When over the caps, the arms supporting the row of points touch upon stops with force enough to detach the drops of varnish from the points. The caps are allowed to remain in the plates a short time—15 or 20 minutes; each cap is then placed, separately, in the chuck of a small foot-lathe, and a rapidly revolving piston, having a reverse motion to that of the chuck, is pressed in the cap to harden and polish the varnish. After some days' drying they are placed in a second lathe and polished externally. (Occasionally I noticed that a cap would explode during this operation, as the boy pushed too hard with his polisher, but no further harm was done than the loss of the cap.)

The government does not make any fulminate, but buys it from a contractor on the island of Jersey. The reason given for this was, that the department is thus saved the tariff charges upon alcohol, which enters free into Jersey. For use, the fulminate is mixed with chlorate of potassa and pounded glass (to give bulk to the fulminate, a very small quantity of which is esteemed necessary). Sulphur and niter formerly used for this purpose are so no longer. The proportions are: 4 parts of fulminate, 9 of chlorate, 2 of glass-dust. The chlorate is bought in commerce and the glass pounded by hand at the establishment. I was not shown

the mixing-room, but was told that the mixture was simply made upon a marble table, without danger; that no accident had ever happened. The caps are said to be invariably good, even after 24 hours' immersion in water.

The contract price of the fulminate is 25s. 3d. per pound (\$6.06). Boys are chiefly employed. I saw but one man; he attended to mixing the powder.

Percussion tubes for cannon are also made here, composed of two tubes of quill. Chlorate of potassa, mixed with sulphuret of antimony, fills the smaller ones, which are fastened at right angles with the larger, charged with gunpowder. Colonel Dundas stated that they found them excellent, both for the land and sea service, and the cost is said to be very little. A specimen accompanies this. No *friction tube* has been introduced.

The chief peculiarities in the fabrication of the fulminating powder, by different nations, may be summed up as follows, and is interesting in showing how much labor, in handling, is avoided by our ingenious machinery:

French.—Mix by hand without pressure; sift by hand; dry by exposure to heated air, and charge, 52 at a time, under moderate pressure, using dust powder. Varnish by hand, one at a time.

Belgium.—Mix by machinery without pressure; sift by machinery; dry upon hot-water plates; and charge under a pressure of 10,000 kilograms, using grain powder only. Varnish by a hand machine, 56 at a time.

Holland.—Mix by hand and then press into a cake, whilst moist, by machinery, under a pressure of 180 kilograms; dry by heated air; sift by machinery; again dry for two days by hot-water plates, and charge, 56 at a time, under a pressure of 12,000 kilograms, using grain powder only. Varnish by a hand machine, 56 at a time.

England.—Fulminate purchased; mixed by hand without pressure; charged immediately, 12 at a time, using dust powder, under a pressure of 14 pounds only. Varnish by a hand machine, 12 at a time; again pressed by a spindle in a lathe; dry for a day and cleaned in a lathe, one at a time.

United States.—Mix by hand without pressure; sift by hand; dry by exposure to heated air, and charge, one at a time (in a machine which makes the cap), under moderate pressure, using dust and fine-grain powder. Varnish, one at a time, by hand.

MAKING CAPS.

French.—Cut copper in strips by machine shears; roll and clean in acid and water each strip; use three different machines, worked and fed by hand, to form *each* cap; roll in sawdust the caps before charging.

Belgium.—Cut copper in strips by machine shears; roll each strip; use two different machines, worked by machinery, but fed by hand, to form *each* cap.

Holland.—Same as Belgium.

England.—Copper cut into strips of double breadth by machine shears; roll each strip; use two machines worked by power, but fed by hand, to form each cap. The caps are then rolled in sawdust to be cleaned; and, after charging and varnishing, placed by hand in a lathe to be again cleaned.

United States.—A single machine, worked by power, cuts from the sheet of copper the star, forms, finishes, and charges the cap without handling.

NOTE UPON THE EXPLOSION OF ABOUT 200 GRAMS OF FULMINATING
POWDER AT THE CITADEL OF LIÈGE, JULY 24, 1849.

[Translation.]

"The 24th of July, at 9 a. m. the hopper exploded while they were engaged in charging percussion caps at the citadel.

"Work had just commenced, and there were nearly 200 grams of powder in the hopper. By the force of the explosion the cap-receiver (a machine of iron with cast brass sides and wrought-iron handle, pierced with 56 holes, containing 56 caps) and the hopper were broken to pieces, and projected almost all downwards with such force that they penetrated the ground to the depth of from 10 to 20 centimeters. Fragments of the brass sides were thrown laterally to a distance of 200 meters. Some injury was done to the building.

"The thick sheet-iron plate (between the hopper-shed and press-room) preserved entirely, as was expected, the interior of the press-room, where were 17 workmen. Two bottles of varnish only were broken within the room by the concussion." * * * *

SMALL-ARMS—FRANCE.

As our musket resembles much the French in dimensions and in the mode of welding the barrels, I thought it advisable to visit some of their armories, and examine the operations to see if the difference in cost reported (for their arms and that of ours) was due to the use of more economical means, or solely to the higher rates of labor and materials in this country. Upon application of our minister, Mr. Rush, I was furnished with orders of admission to Mutzig Armory near Strasbourg, and to St. Etienne Armory near Lyons. As I was informed that neither of these was entirely a *government* establishment (the first being owned and conducted by a contractor who is paid a fixed price upon each finished arm, and the second in part owned and conducted by contract), I afterwards visited Châtellerault Armory—the largest in France—which is owned by government and conducted without the interposition of a contractor. The operations at all are under the control of the artillery—a director, a sub-director, and from 6 to 10 captains (*en seconde*) being stationed at each—the last for their instruction as well as for the assistance of the director in supervising the shops and the course of work, and inspecting the rough material and the finished arms. A special board of officers at Paris is likewise charged with the minute examination (with standard gauges) of a certain number of arms from each manufactory each half year; and its report, as far as it concerns the work of either armory, is posted conspicuously in view of the workmen, to prevent thus the gradual introduction of any change in dimensions. A peculiar feature in the work at the French armories—producing, they say, a great economy in the price, and unobjectionable in all respects—is their mode of *repairing defective barrels by piecing them*. This is done at all stages of the fabrication as the defect is discovered—even in cases where barrels burst in the proof. One result of it is immediately noticed—the absence of the piles of rejected barrels generally to be seen at other armories. This plan, perfectly familiar in other kinds of iron work, has not been to my knowledge elsewhere applied to barrels; but there seems to be no practical objection to its introduction to some extent, if not to the degree practiced in France. But few machines are used in any of their establishments, and those generally of

old patterns. In boring, *two* or *three* different lathes are used for each barrel. With *two*, 7 boring-rods are used in the first and 9 in the second. The conical portion of the barrel only is turned; it is then finished by file and grindstone. A few milling tools are used at Chattellerault; but none were seen elsewhere. The breech is threaded, the breech screw cut, and the vent bored by hand-tools; this last operation *without a fixed frame* to support the barrel. At all the establishments the workmen furnish their own tools, and much of the work is done at the home of the workmen. A tariff establishes the price allowed for each operation, provided the part receives the stamp of the inspector; but by the rules established at Mutzig and St. Etienne (and it is believed Chattellerault also), if a skelp is taken from the store, a good barrel (passing all inspections) must be returned for it, all defects being supposed to be produced in the workmanship; consequently, all the work lost by defects discovered in the course of fabrication has to be made good by the different workmen in whose hands it has been. The usual defects noticed in barrels—*cross-cracks, cinder-holes, flaws, &c.*—were observed at times in the French barrel; but the inspection is very rigid, and the finished barrel seems to be faultless. Stocks are supplied in the rough from the stores to outdoor workmen, the contractor being charged with its cost price, 1.90 francs (35 $\frac{3}{4}$ cents). The dimensions of the shank of the bayonet have recently been enlarged in the vertical direction. They are now 16 millimeters \times 11.3 millimeters horizontal diameter. Cones are made at St. Etienne and Chattellerault, and sword bayonets at Chattellerault only, from whence the other armories are supplied. Although great care is observed to reject all parts not of prescribed dimensions, it is yet impossible to have the parts interchange—each has to be fitted and marked for its own barrel and stock. The spare parts for repairs are not finished to exact dimensions at the armories. The peculiarities noticed at the different establishments, and the prices of materials or work, are given below.

Mutzig.—Iron is purchased in bars 1 inch thick, 2 $\frac{3}{4}$ wide; about one foot makes two skelps—price of skelp 4.50 francs (84 $\frac{3}{8}$ cents). In forging, the barrel receives from 60 to 75 heats, commencing *at the center* and *finishing* at the *small end*. The seat for the cone is forged separately and welded in a slot cut to receive it. Barrels are proved in the presence of an officer; less than two per cent. burst in the proof. Cost of finished barrel 9 francs (\$1.69)—of bayonet 3.45 francs (64 $\frac{1}{2}$ cents). The stocker is paid 2.50 francs (47 cents). One stock per day is esteemed a fair day's work, but many of the men finish *three in two days* or *four in three days*. The finished gun is said to cost 32 francs (\$6.02). Water power is used to turn the machinery. Forges *single* with hand bellows. About 16,000 new arms were made during the last year.

St. Etienne.—Inspection offices and assembling shops are in the village; about two miles from these are other shops—one large building with a steam engine attached, where are, in one room, *boring and turning lathes, grindstones and emery wheels, and blowing cylinders* (for the fires in the forging shops adjacent), an inspection room for barrels and bayonets, an iron storehouse, a proving house, and a damp cellar (the "*salle humide*"), where finished barrels are stored for thirty days previous to the final inspection. This plan is not continued elsewhere, but it is said to be the most effective means of developing defects in the iron, as the condensed moisture escapes from the defective portion long after the sound part is dry. Grindstones, it is said, are secured from bursting by imbedding in the sides circles of iron 1 $\frac{1}{2}$ inch wide by $\frac{3}{4}$ thick, let in with melted lead. *One* or *two* circles are used, according to the size of the stone—

the smaller about 2 feet in diameter, the other 3½ feet. No stone has burst here since this plan was adopted. Bar iron for barrels costs 64 francs the 100 kilograms (\$12 for 220 pounds). Barrels are all finished in these shops; locks, stocks, mountings, &c., by outdoor workmen in the village, and sent to the inspection offices, there to be assembled. Muskets, as soon as they are boxed, are sent to Lyons to be stored. Packing-boxes are very rough and unplanned. The cost of the finished musket is said to be the same as at Mutzig.

Chattellerault.—The armory is about two miles from the village, consisting of two ranges of shops; *one*, five in number, with a water-wheel to each, turning machinery within; the *other* for hand workmen and stores. Eight large four-story buildings of stone are also attached to the establishment, for quarters for the workmen and their families; 900 workmen are said to be employed here, besides many outdoor hands (some of whom live as far as *five leagues* from the armory). A large stone building designed for storing arms is now used for pattern-rooms, saddler's work (making belts), filing and finishing light parts, &c., as the government has forbidden arms to be stored elsewhere than at the forts. In the pattern-rooms are kept samples of each article made, in each stage of its manufacture, showing the part done by each order of workmen, or by each different machine through which the work passes. The machine-shops contain trip-hammers, forges, blowing cylinders, lathes, drop-hammers and molds for forming the cuirass, grindstones, emery-wheels, and some few milling-machines for parts of small-arms. Fourteen varieties of fire-arms, four of sabers, two of swords, two of sword-bayonets, and the breast and back plates of the cuirass, with the implements for small-arms and the mountings for belts and slings, are made at the establishment—a variety of work which must allow of great economy of material under the system pursued. The iron necessary is purchased of suitable dimensions, the price a little greater than at St. Etienne. The steel is drawn under the trip-hammers to the sizes needed for saber and sword blades, and weighed off for each in a special balance. The rod, suspended in water, in a square tube, is marked at the point indicating the proper cubical contents (of the part immersed) for the kind of blade to be made. The forging is done by outdoor hands, the grinding and polishing in the shops. The cuirass is finished entirely at the shops. Alternate pieces of iron and steel, squaring ¾-inch or less, are thoroughly welded together in piles under the trip; the mass is doubled and drawn out repeatedly, and then hammered into plates and rolled into sheets of proper thickness. These are molded to form by drop-hammers. Three molds are necessary for each. The edges are then hammered, and the plates finished on the grindstone. The use of the “*salle humide*,” for depositing barrels after their completion, has been discontinued here, also the use of polishing machines; both changes, it is said, by the influence of the workmen. The grindstones in use are of artificial construction; the exact mode of preparing them is not known; but they are said to be composed of a mixture of sand, bitumen, and resin. They are about the color of pale-red sandstone, and of many varieties of fineness. The workmen spoke highly of them as cutting well, not wearing rapidly, and perfectly safe. They are on trial here, as an experiment, previous to their general introduction. A captain of artillery is charged with examining and reporting the details of their use. The usual number of muskets finished is said to be 1,800 per month. The cost of the musket here is said to be 34 francs (\$6.37½).

Altering flint-arms to percussion.—This is going on very extensively at all the armories; about 60,000 were altered last year at Mutzig, and much

larger numbers at St. Etienne and Châtellerault. Carbines for the artillery are all altered *à la tige*, and generally at the last named place. The rifling is done in a vertical hand-machine, the barrel held fast, and the tool descending in a long brass guide. In transforming the musket, the old vent is threaded and screw-plugged—diameter of plug before threading $4\frac{1}{2}$ millimeters; a second plug 15 millimeters at the small end and 20 millimeters at the large, and 22 millimeters long, is screwed in the top of the barrel to form the cone-seat, and the interior excess of these plugs bored off by a hand-drill. The seat is then formed, topped, and bored ready for the cone. The muzzle-sight (previously on the upper band) is brazed on the barrel in a slot and a breech-sight tightly hammered in a similar slot cut in the tang of the breech-pin. The barrel is then fine-bored to its new diameter of 18 millimeters, and then proved with a charge of 20 grams and one ball. All barrels found defective upon a first inspection or which burst in the proof are repaired by piecing, as with new barrels; by preference the piece is attached to the butt-end when equally economical, and the small end cut into ferules (for the screw-driver and cone wrench handles for the new carbines). The plane of junction of the new piece is perpendicular to the axis, as in the welding of Treadwell's cannon. A barrel which burst in the proof at Mutzig, in my presence, for the length of six inches, was sent to the forging-shop to be pieced, and the master workman stated that for $4\frac{1}{2}$ francs (half the price of a new barrel) it would be made again ready for the proof. Old stocks are scraped and oiled, the bands merely flattened a little to make them bind. Locks altered by removing the pan and filling up the bed with an iron plate; an extra notch is filed in the tumbler as "a cran de sinete," and a hammer replaces the cock. These changes cost only 5 francs (94 cents) per musket, *where all parts are good*; but I saw some muskets repaired where the lock needed several new parts and the barrel was pieced. Where arms to be altered are in the hands of troops, officers of the armories are sent to inspect and receive them, making a report of their condition; other altered arms are issued, no new muskets being yet in the hands of the troops.

New pattern fire-arms.—For many years efforts have been made by the French artillery to introduce the rifle principle into their system of fire-arms, under a form which should give the advantages known to be due to the grooved arm, with a forced ball, without the objections then belonging to that principle, viz, a difficult and slow mode of loading, and a ball deformed disadvantageously upon leaving the gun—objections esteemed sufficiently powerful to abolish, for a long time, the use of the grooved arms in the French service. A certain step had been gained as early as 1828 by the invention of M. Delvigne, who, by making a chamber for the powder of a less diameter than the rest of the bore, and (later) by using a cylindro-conical ball, succeeded in reducing the difficulty of loading and in gaining accuracy with small charges, but with a loss of force to the ball for long ranges. Continued trials since producing, step by step, modifications in the grooves of the bore, the form of the ball and the rod, resulted in the adoption and introduction of a carbine in 1840, which was placed in the hands of a special corps, styled the Chasseurs d'Orléans. The services of this corps in Africa proving the superior range and accuracy of their arm induced the artillery to apply the principle to its carbines and afterwards to the infantry musket. The essential difference between this arm and grooved arms previously known is in having a stem of small diameter attached to the breech-pin in the axis of the bore, upon the end of which the ball rests in loading, and then (by the usual number of blows for smooth-bored arms)

with the rammer it is easily made to fill the grooves of the barrel, without essentially altering the shape known to be best to secure to it velocity and a rotary movement in the direction of its longest axis. This idea is said to be due to General Thouvenin; but the details of the dimensions for the stem, the grooves, the ball, and the sights, have been established, after long trials, by Messrs. Tamisier and Minie, officers employed at the school of practice-firing at Vincennes. I do not think that the plan is yet considered so free from practical objections, as to secure its general introduction for all arms. The French officers, however, always speak of it in the highest terms, and the services of the Chasseurs have been invariably mentioned with eulogy upon their arm in Algeria, and recently at Rome. In Belgium and Holland I found that trials had been made with it, confirming, in a measure, the French reports of its superior accuracy and range. It is certainly advantageous for *some* corps; and in Belgium and Holland they propose arming the foot-rifle corps *only* with it. In Belgium its fabrication has been commenced. The results said to be obtained from the short artillery carbine, in France, commend it especially for that arm, now so inferior to the musket. The stem is a cylinder of steel, tempered at the end upon which the ball rests, and screw-threaded at the other end for a length of 1 centimeter; the diameter .009 meter, and the height above the breech .038 meter. The barrel has 4 grooves, with the inclination of 2 meters in one revolution; breadth of groove 7 millimeters; the depth varying from 3 millimeters at the breech to 1.5 millimeters at the muzzle of the musket. A special hausse, with a hinge joint, is attached about 4 inches in front of the cone, admitting of *three fixed sights*, and with a movable slide for higher elevations (graduated in the *Chasseurs' carbine* to 800 meters). General Tournemine told me that the altered musket had been fired at 1,200 meters, placing 66 balls in the butt in the 100; the carbine the same at 800; and the artillery carbine (having only 23½ inches' length of barrel) placed 56 per cent. in the butt at 400 meters. Far inferior results would commend strongly the introduction of a principle which *secured* them. The shape of the ball (every line of which is said to have been established, as it now is, upon *special trial*) can be best judged of from the one presented herewith; its weight is 47.5 grams (1.67 ounce). The service charge for the musket is 4.5 grams (for the artillery carbine, 2 grams less); for blank cartridges, 7 grams are used. As 6.30 grams are necessary to fill the space around the stem, the charge of 7 is ordered, that the rod may never touch the stem in loading. The vacant space between the powder and the ball secures room enough for any ordinary accumulation of dirt in long-continued firing, and no injury has resulted from it to any of the arms tried. Ball cartridges are made with an extra piece of paper, forming a cup, to contain the powder; the ball and this cup are then enveloped in the ordinary folds of the cartridge paper, and the ball end dipped in grease. In loading, the powder is poured into the barrel, the ball inverted, and inserted in the bore, *all the paper torn off* and thrown away, and the ball rammed home; six cartridges are bundled together (with eight caps, in a special cylinder).

In the alteration of old guns to this new plan, *at first* the barrel was cut off in front of the vent, and a new piece (of a length to contain the charge; and with the stem attached to its breech-pin), of greater strength than the original, was attached, by screw-thread, to the barrel. This was found to be unnecessary upon trial, and *now* a stem of proper size is merely screwed into the original breech-pin and the old barrel grooved, as above stated. All artillery carbines are to be so altered, all the regi-

ments of that corps being armed now with the altered arm. Two regiments of infantry, stationed at Metz, are armed with the altered musket; and I understood that the further alteration of muskets had been suspended until the reports of a long practice in these regiments had established the suitability of the arm to infantry service. The officers at Metz with whom I conversed stated that, up to that time, the trials had been favorable. A special drill has been published for this arm, containing directions for teaching the appreciation of distances and the use of the sights; a copy of this I have brought with me.

To avoid the necessity of using the stem a recent proposition has been made to use a ball charged at its lower extremity with powder (*percussion*, I believe), which, exploding with the charge of the gun, would swell out the circumference of the ball sufficient to fill the grooves of the barrel. General Tournemine, a member of the committee of artillery at Paris, told me that experiments with this ball before the committee had been perfectly successful, and showed me the cartridges proposed for each arm. He stated that further experiments were to be commenced at the school at Vincennes; the result of these I have not heard. The cap for each cartridge was conveniently carried in the hole in the ball, on the top of its charge.

The carbine made in Belgium (and proposed to be introduced) differs from the French in the grooves of the barrel being only 5.6 millimeters wide and three millimeters deep. The price is said to be 60 francs. Trials were in progress at the armory at Delft at the time of my visit. The gun was fired from a rest—the distance from the butt 800 meters—at which 48 per cent. of the balls struck the target.

In connection with the subject of small-arms in France, I will notice the novelties exhibited at the national exhibition at Paris in this branch. M. Delvigne proposes a *tube for practice* to be applied to the interior of the musket or cannon, with a view to economize the expenditure of ammunition while teaching the use of these arms in service. The tube for the musket has a bore of the diameter of our buckshot, and fits in the bore of the gun. A mark on its end shows when the vent of the tube is opposite the vent of the gun. For *cannon* the tube is of brass, to the length of the same number of calibers of its bore as the *gun* has, in terms of its caliber. This brass tube has arms of iron extending to the muzzle, by which it can be drawn out to be loaded. Aiming by the *usual method* (as the shot is placed in the axis of the piece) it will depart, he says, under precisely the same circumstances as when the full size shot and charge are used. A Mr. Buvers exhibits the shank of a bayonet finished by machinery. He states that he can furnish bayonets of the French Government model by the use of his machines (which are not shown) $3\frac{3}{5}$ sous cheaper than the government now pays. Berger, of St. Etienne, exhibits a musket-lock for the government musket, where the number of parts is reduced to *three*. This ingenious and simple arrangement seems to be as strong and solid as it is simple. Its external appearance is the same as the present French musket-lock; the *same lock plate*, indeed, could be used; the present side-screw, no longer necessary, would not be in the way, if retained. *Reversing* the existing action of the lock (where the tumbler is attached to the hammer, making necessary a sear-spring to equipoise the pressure of the main-spring upon the nose of the tumbler), to the *hammer* is attached a piece, acting as the sear; and the end of the main-spring has on it the notches usually on the tumbler. The upper arm of the spring has on the end a projecting point working in circular slot in the hammer, which steadies it against the pressure of the lower arm. Thus the *hammer, spring, and lock-plate* form the lock. The usual tum-

bler-screw prolonged holds the hammer upon the lock-plate, and attaches the lock to the stock—the front of the plate being held by the head of a fixed screw, as in the present French musket. On the *outside* of the lock-plate is a cylindrical projection, upon which the hammer fits. Through the center of this the side-screw passes. On the *inside* of the plate, the main-spring is attached, about the center of its length, by a pin, and its lower arm bears upon a fixed stop on the plate to stiffen it. The *exterior* surface of the hammer is as at present; on its *inner* face is a circular projection, centering with the cylinder on which the hammer turns, and revolving in a bed in the lock-plate, of a depth equal to half the thickness of the plate. Near the outer edge of *this* projection is screwed permanently the piece acting as sear, which works in the notches on the end of the main-spring through a hole in the lock-plate. A groove in another part of the projection allows the projecting point on the end of the upper arm of the spring to work in it, passing through a cut in the lock-plate also. These two cuts in the plate are covered by the hammer. The hammer can be taken off when drawn to its full height, without the use of a spring-vise, thus effecting another economy in dispensing with this. With the hammer off, the lock can be thoroughly cleaned. This suggestion, due to an apprentice boy at St. Etienne, seems to me to have many merits to commend its introduction. I understood, from the exhibitor, that it was under trial before the committee of artillery, but I have not heard the result.

Goossen.—An ingenious lock for small-arms has been made at Delft, and is said to have been fired more than 1,000 times without a failure. The lock consists of but one piece—a *spring*—(acting also as the hammer); the cone is in the axis of the gun, on the breech-pin; the trigger forms part of the spring. One end of the spring rests in a notch forged under the barrel; by pressing down the other end the trigger notch catches on the guard-plate; by pulling back the trigger the spring is released and the cap fired.

SMALL-ARMS—BELGIUM.

A national armory has been erected at Liège upon a square of the town. It is a neat, commodious building; but, as yet, has not been extended as much as is proposed. The front (and main entrance) forms a hollow square, with a steam-engine in the center of the body of the building, and shops and offices in the wings. Several machines of similar pattern to those in use with us are used in the fabrication, and the commanding officer, Colonel Timmerhans (whose publications upon artillery have made him well known to us), is desirous of extending the use of them. Among other machines is one for turning stocks (the only one I saw in Europe); but, as yet, they have not been able to make it perform well. The course of the fabrication resembles much that followed in France (with newer and better machinery and a few more milling machines)—much of the work being done by outdoor hands. A large portion of this establishment is devoted to the practical instruction of young lads, enlisted for the purpose of fitting them to repair arms in the regiments. All parts of the work are in turn taught to them, under the instruction of masters who rank as non-commissioned officers. Here, as at the French armories, the workmen are obliged to remedy all defects which are found in the barrel in the course of inspection. Many of these defects are worked out by reheating and upsetting—the barrel being forged very long with this object; scarcely one, the foreman said, being free in its whole length at first. As they have not followed the French

plan of piecing, there is an ultimate loss in barrels of from 10 to 15 per cent. The Belgium iron is esteemed to be peculiarly tough; as a proof of this the colonel told me that, besides the ordinary proof of *two fires* given to every barrel, some are selected from each month's work for *proof à outrance*, and fired with half the weight (of the ball) of powder and a gradual increase of the number of balls; and that generally they endured to 7 balls. It is very rare that one bursts in the ordinary proof. The breech-pin is made with a notch in the square end, which fits into a piece fastened to the stock by the tang screw, so that the barrel is taken from the stock without loosening this screw. The cost of the finished musket to the government is said to be 32 francs. Cones are made by Mr. Fabisse at 3 sous apiece. His machines for finishing them will be described in another place. There are two machines in use for making pressed balls—one vertical, and the other very similar to that at Washington Arsenal, except that the press worked horizontally. This last seemed to do its work very well.

Altering flint muskets.—Two modes have been pursued; by the first, the hole for the cone is tapped in the metal of the barrel, crowded up with a cold chisel; the other operation is the same as described for the French arms. This plan is said to have cost only $2\frac{1}{2}$ francs (47 cents) the musket. By the other mode, which is followed now, a large piece for the cone seat is brazed on, extending over and resting upon the lock-plate, the plug for the old vent passing through this piece; by this plan (the other operations being the same as above) the cost is said to be $3\frac{1}{2}$ francs ($65\frac{1}{2}$ cents). No reason was given for the change, except that it made a better finish.

Colonel T. has made one of the new Prussian muskets, loading at the breech and having the percussion powder in front of the powder of the charge. He said he found it to be extremely difficult to make and very costly. He was kind enough to allow me to have a copy of his drawing of it and one of the balls, which he was preparing for trial. They are submitted with this report. The weight of this new arm is 5.160 (11.37 pounds) without bayonet, caliber 7.1 millimeters, with four grooves in barrel. The reports from the seat of war in Baden, in July last, spoke very favorably of it.

At Liège are many large private establishments making arms for commerce and for the smaller European States. In company with an officer of the Hesse Cassel artillery I visited one of these, where muskets are made for his government at a contract price of 40 francs (\$7.50) apiece. This officer is required to superintend every part of the process, and he has with him an inspector to inspect and stamp every piece before receiving it. The guns seem neatly made and well finished, being quite equal in these respects to any I saw. The parts, however, do not interchange, the gauges allowing considerable room for differences. Their lock is similar to ours, with two side-screws; mountings in brass. The breech pin has a large shoulder at the end of the screw, forming, when the pin is in, a continuation of the barrel three-tenths of an inch long; a part of the scallop of the cone-seat is cut in this. The work is generally done by hand out of the establishment, and brought there for inspection and assembling.

Among the arms made for sale were pocket pistols with iron barrels, with bullet molds, price per pair $3\frac{1}{2}$ francs ($65\frac{1}{2}$ cents); and with brass barrels, same size, three francs. Horsemen's pistols, with iron barrels eight inches long, 10 francs (\$1.88) the pair. All barrels made at Liège must be proved by the government officers.

SMALL-ARMS—PRUSSIA.

There are said to be five armories in Prussia; two of them, Spandau and Potsdam, in the neighborhood of Berlin. At the first the barrels, rods, and bayonets are forged, and in part finished; thence sent to Potsdam to be completed and assembled. There are at Spandau but few buildings, generally old and dilapidated, with a few machines of old patterns, driven by water-power. The work is done by a contractor, under charge of officers of different corps, stationed there in rotation. During my visit the officer present was a lieutenant of cavalry. Barrels are welded by hand, and also by trip-hammer. These last are said to be generally more defective than those welded by hand—about 10 per cent. are reported as lost. A good barrel must be returned for each skelp, at the expense of the workmen, unless the defect is reported when the skelp is issued. The skelp is said to cost 50 groschen (\$1.15); finished barrels, 3 thalers (\$2.21); and the musket complete, 11 thalers (\$7.62). Ten heats are given in welding a barrel under the trip, and 50 under the hand hammer.

It is said that several thousand men are now armed with the new musket; but it is not exclusively in use. The place of its fabrication, as well as the details of it, seem to be kept secret.

SMALL-ARMS—HOLLAND.

The national armory is at Delft, at present but a small establishment. A steam-engine has recently been erected, and they propose its immediate extension. Barrels are now made by contract at Liège. They are delivered at Liège (*bored and rough-turned, with the cone-seat welded on, but not dressed*), at $3\frac{1}{2}$ florins (\$1.40). The rest of the work required is done by hired labor in the government shops. Hammers and plates are swedged and finished by hand. Some few turning lathes and a horizontal polishing machine, at present, are the only machines. During my visit the chief work was in altering flint-arms. By the plan adopted a piece of iron two inches long is brazed on the side of the barrel; the brass pan is sawed off even with the lock-plate, and this piece dressed to fit in the pan and on the edge of the plate. The plug for the old vent passes through it. The cone-seat is not in this piece, but is *crowded* up from the metal of the barrel. The new lock-plate of iron is made of the shape of this lock-plate, as altered, and the new barrel so as to conform to the altered barrel. Cones are bought at Liège all finished. It is said the alteration of flint arms costs $5\frac{1}{2}$ francs each (\$1.03 $\frac{1}{2}$), and the new musket from 37 to 42 francs (\$6.94 to \$7.87 $\frac{1}{2}$). The best finishers receive from $2\frac{1}{4}$ to $2\frac{1}{2}$ francs ($42\frac{1}{4}$ to 47 cents) per day. The shops are lighted with gas, and 11 hours' work a day always required. They have one room in which are pattern arms of different European nations; among the rest a transformed Austrian musket. The flint is replaced by an iron nose fastened in the old cock. The percussion powder is contained in a tube, which is tied to the cartridge for transportation, and inserted in the vent *as priming*, the end projecting into the pan. To fire, the pan cover is thrown open and the iron nose strikes against the tube in the bottom of the pan. If the percussion cartridges are exhausted the old method of the flint-lock musket is again resorted to, changing the iron nose for the flint. This plan, the officer said, was still followed in the Austrian service. Several tubes tried in my presence (which had been made several years) failed to explode.

The musket stocks at this armory are finished entirely by hand. The

workmen are allowed two and a quarter francs (forty-two and a quarter cents) apiece; most of them finish more than one a day. If the work is not made exact to gauge the piece is not necessarily rejected, but a proportionate deduction is made in the pay for the work. A director (a captain) and four other officers are stationed at this armory.

The tumbler has but two notches—the half-cock being low enough to prevent the cap falling off.

The cavalry carbine has a *loop-trigger* well guarded from the danger of being caught and pulled accidentally.

The Chasseurs rifle is grooved with six grooves, and the ball is forced by blows on the rod with a *mallet*, carried for this purpose.

SMALL-ARMS—ENGLAND.

Birmingham is the chief manufacturing place of smooth-bored arms, and is, I believe, the only place where the barrels are welded under rollers. The national establishment at Enfield (where rifles are made and flint muskets altered) has not yet, I understood, introduced this mode of welding. As the orders of the department could be fully carried out by visiting the extensive private establishment at Birmingham, I did not think it necessary to await in London the return of our minister to apply for permission to see the *national* establishment, as it is said to be conducted upon a smaller scale. An officer, styled the “inspector of small-arms,” having his office at the Tower in London, goes each month to inspect and receive the finished work at Birmingham, and all arms passed by him are stamped “*Tower*,” although no arms have been made there (at the Tower) for many years.

The buildings owned by the government at Birmingham, styled the “small-arms inspection offices,” are principally used in inspecting the various parts of the arms, after delivery by the different contractors, and also the finished arm, after being “set up” by another contractor who undertakes this branch. A steam-engine is attached to the building, moving some few machines, by aid of which the *vents are bored, cone seats milled* and in part finished; *cones fitted, hammers capped and centered in the nose*, and *bored and fitted* to the arbor of the tumbler; this arbor *turned*, and a *pin-hole bored* and pin driven in to fasten together the two (so as to prevent the necessity of squaring the hole in the hammer, as with us). Those operations are completed by government workmen, generally boys.

A proving-house and a rough stock shed are also attached. No hastening process is used in seasoning.

The course of the manufacture is as follows:

Barrels, made by contract, finished (except as above stated), and delivered for proving, are, after inspection, fired one charge with one ball and one ounce of powder, using a proving breech-pin with the vent drilled in the axis. If it endures this proof it is finished, as above, in the government shops, and with its proper cone and breech-pin fired a second time, with thirteen drachms and one ball. If the barrel endures these two without injury, and is entirely free from surface defects, it is received, and the contractor is paid 12s. 6d. (\$3).

Stocks.—Rough stocks are purchased in France, by a resident agent, and inspected before payment by a special inspector. They are sent to Birmingham and Enfield and stored in sheds, with lattice-work sides, for seasoning. The “setter up” is charged 3s. for the rough stock; if it prove defective in the course of fabrication it is exchanged, but nothing is paid for the lost work by the government. This has to be made good

by the foreman of the inspection office, who receives a percentage upon every musket received by the small-arms inspector, to compensate him for defective parts received from contractors, by himself or his assistants (the government requiring a musket complete, to show for every issue of parts paid for). The setter up, receiving the rough stock and parts (only so far finished, as before explained, in the government machines), has the musket completed at his own shops or by hands employed by him; returning it *twice* for inspection to the officers *before the last operation* (browning the barrel and bayonet shank) has been performed. He receives 12s. 9d. for his part of the work, and for letting in the barrel and lock *merely* 3s. 9d. *additional* for the stocker.

Small parts.—These are contracted for separately, to be delivered in the condition required at the offices; bayonets, rods, and cones included. The total cost to the government of the first-class arms (a strong, substantial arm, but of an inferior finish to ours) is said to be from 60 to 64 shillings (\$14.40 to \$15.36). A second-class musket, made for issue to the militia, called “extra muskets,” are said to cost 58 shillings (\$13.92). These are subjected to less rigid rules in the inspection. First-class arms are stamped “Tower,” *below the hammer*, about the center of the lock-plate. Extra muskets have the same word on *the butt end* of the lock-plate.

Welding barrels.—The government does not prescribe the mode of making the barrels, only requiring that they shall be free from prohibited defects, be of proper dimensions and sustain the prescribed proof. The contractors finding that they can make the barrels stronger and more free from defects by rolling, have adopted this method; they say it is not less costly than that by hand welding, *except* in turning out the work more free from blemishes, and especially in avoiding cross-cracks, which they think are produced in hand welding. The iron, they think, is improved in the course of fabrication, but they still find it necessary to use only the *very best* for government work, paying for it the highest price, £23 per ton, rolled. The iron is furnished five inches wide by seven-eighths thick, in lengths of about twelve inches, weighing ten pounds. The pieces, heated in a furnace to a bright red heat, are passed first through rollers with three grooves; the first bending the plate in the center lengthwise, and the second and third bringing it to a cylindrical form. After preparing a sufficient number of these pieces the same party commence the welding operation. At the establishment at work during my visit, this party consisted of four boys; one tending furnace, taking out and putting in the cylinders; a second received the cylinders from No. 1, and inserting the spindle, passed it to the rollers; a third, on the opposite side of the roller to No. 2, received the cylinder and handed it over the rollers to No. 2, *to be repassed*, or to No. 1 *to be reheated*, straightening it if necessary on the straightening board at his right hand. No. 4 aided No. 3, and receiving the finished barrel, straightened it in the machine for that purpose, carried it off and piled it. The rollers contain, for making the government barrels, *three* circular and *two* conical grooves. (As a great variety of sizes of barrels are made by these manufacturers, the rollers in use contained many more conical grooves not used in government work.) On the right, facing the rollers, is a water tub, and attached to and in front of them an iron rest, about four feet from the vertical plane, passing through their axes, and at the height of the top of the lower roller. This rest is composed of two parallel bars, one inch square, separated three and a half inches, but in the same vertical plane, and fastened firmly by iron arms to the frame of the rollers. Seven spindles are used. The spindle consists of *handle*,

guard, shank, and point. A movable guard-plate, six inches in diameter, with a hole in its center, is passed on to the spindle before using it, and is transferred from one to another. The length of handle six inches, and from *guard to point* the same distance as from the *front of the iron rest to the vertical plane through center of rollers.* The point is of steel, one and a half inch long, and ranging from one and a half inch in diameter in No. 1 spindle to four-tenths diameter in No. 7 spindle. In the work the point is the only part of the spindle which comes between the rollers (the guard-plate, supported by the rest, preventing the spindle from being drawn through with the cylinder or skelp. This is, therefore, *pulled off* from the spindle by the revolution of the rollers).

The cylinders having been prepared as stated and placed in the furnace, three or four at a time, when one is at a welding heat No. 1 workman draws it to the furnace door, No. 2 inserting the end of the largest or first spindle into the cylinder, lifts it up, and by jamming it against the iron plate side of the furnace, forces it on to the spindle, until the end of the point is even with the end of the cylinder; he then takes it to the rollers, passing it through the opening in the rest, and bringing it opposite to and entering the *first circular groove*, the line of junction of the edges of the skelp *vertical.* No. 3 receives it on the opposite side with pincers and handing it to No. 1 is ready again at his place to receive a second one, which No. 2 has prepared to pass through in the same way. After the second welding heat No. 2 inserts No. 2 spindle (with a smaller point than the first), and prepares to pass the cylinder through the *second circular groove* of the rollers. This time he places the junction of the edge *horizontal.* No. 3 now receives it, the weld complete, and the cylinder about fifteen inches long. The subsequent heatings are never above a red heat, and the object of the rolling is to lengthen the cylinder and give a conical form. With a third spindle it passes through the *third circular groove* and is lengthened to about twenty inches. After the fourth heat the fourth spindle is inserted and the cylinder is held ready to enter the *first conical groove.* No. 2 watches as the rollers turn, until the shoulders, formed by the junction of the large and small ends of the cones grooved on the two rollers, are about coming together; he then pushes in the cylinder, and its end is caught by No. 3 on the other side, who supports it as it comes through; and handing it over the rollers, No. 2 inserts again his spindle, and again passes it through. No. 3 receiving it, straightens it by two or three hits (*slaps*) upon an iron plate (near the ground on his right hand, when facing the rollers), and hands it again to No. 1 at the furnace. The same *conical groove* is used for the fifth heat, and spindle No. 5, the barrel becoming longer with a smaller bore. The sixth and seventh spindles inserted after the sixth and seventh heats, and the *second conical groove* is used. The barrel is passed in all about *ten times* through the rollers, receiving *seven heats* (the *two first only* being welding heats). It is now of nearly finished diameter, excess about $\frac{1}{8}$ of an inch, with slight excess of length, and a bore of $\frac{4}{10}$ of an inch. While hot from last heating, No. 4, who has been assisting No. 3 during the previous operations, inserts a spindle in the barrel and takes it to the straightening-press, the lower table of which is fixed, while the upper one has a lifting and falling motion. No. 4 turns the barrel on its axis until it is quite straight, taking care to move the spindle occasionally to the right or left. The jaws of this press are nearly of the length of the barrel, and have conical grooves suitable to the shape of the barrel in the direction of the length. When quite straight the spindle is drawn out and the barrel carried to the pile. The cost at this stage is about 5s. (\$1.20), and one hundred barrels a day for *four boys*

and *one pair* of rollers are a fair day's work; but eight hundred in six days can be made when the hands are practiced and the rollers in good order. From the furnace-room the rolled barrels are taken to a hand-forge, cut to the proper length and the ends squared, and the cone-seat welded on; then bored, turned, and ground breech-pin made and fitted, sights and studs brazed on, and then polished ready for delivery. If received, the government pays 12s. 6d., as before stated. The contractor says that the iron is so much improved in resisting power by this process, that the average loss in proof, firing with the large charges used, is only two or three in one thousand; and frequently, not one in a thousand delivered bursts. Not over ten per cent. are lost for any cause; whereas, formerly, fifty per cent. were rejected in the course of the different inspections. Great care is requisite in rolling to keep the spindle evenly in the center. Twenty-seven in the one hundred burst in one proof, the day before my visit, of a lot of fowling-pieces, owing to the metal being too thin on one side. Though much pleased with the use of the rollers, the manufacturers speak of them as being very troublesome, requiring frequent turning to sharpen the grooves. A large lathe of common construction, with cutters of steel of exact size, is kept exclusively for this purpose.

The largest diameter is about fifteen inches; screw-compressors attached to the top of the roller, permit an easy adjustment. No. 2 would turn the screws occasionally during the work, as he found it necessary.

This company makes cheap barrels for foreign markets, all finished, at 1s. 9d. apiece. I saw barrels making for the East India Company, short smooth bore, for which they received 16s. apiece. These are to be grooved in London.

The machinery for rolling barrels was invented by a man now dead, whose patent expired before he could succeed in introducing the plan. Since, Mr. Clyde has perfected the arrangements and has been able to make it work well. He is now the largest manufacturer in Birmingham. He says that the government has ordered but little work this year, as some change of model is said to be in contemplation; last year, however, he had work enough to keep three pair of rollers at work in Birmingham, turning out an average of three hundred barrels a day. Other rollers in the neighborhood were also employed.

Stocking machines have been made and put up more than once in Birmingham, but the stockers have always succeeded in preventing their adoption.

The parts of government arms cannot be interchanged, and the general neatness of the work is not superior to that of French arms, as less rigid rules are followed in the inspection. Our own, in this particular, are quite equal to the best I saw.

Altered arms.—The cone seat is brazed on the barrel and the bed of the vent filled up with iron. Other changes as usual. Last year the arms were altered by contract at 13s. 6d. apiece. At present, I understood that all work of that kind was done at Enfield.

I saw at a private establishment here a plan proposed for locking the trigger to prevent its pulling down the hammer, if *accidentally* touched: A wire rod (one end of which locked the trigger, preventing all motion) extended along the stock to the usual position of the left hand in aiming. By pressing back this hand a little the rod was moved back, and the trigger, unlocked, could be pulled by the right hand. As it is necessary to push back with the left hand while pulling the trigger with the right, an accidental discharge could hardly occur. This principle has been applied much to sporting-arms.

ARSENALS, FOUNDRIES, LABORATORIES, POWDER-WORKS, &C.

The report of the board of officers who visited Europe in 1840 gives so correct and satisfactory a description of the most important of those establishments in Europe that nothing remains for me to say (after stating the few improvements made since their visit) of those noticed by them. Some details of the smaller establishments not visited by the board may prove interesting, as they all have some peculiarities striking to the eye of a stranger.

At Metz and Strasbourg, in repairing and making field carriages, a band of iron, *three millimeters thick and seventy-six wide*, covers the junction of the two pieces forming the stock above and below, to prevent the introduction of water in the joint. It is secured by nails, and (at the ends) *under* the elevating screw box and lunette ring-plate. Old carriages, after a few years' service, are found to be much decayed at this part. Shoes are to replace the lock-chain in all siege carriages. Battery wagons have open slat sides and a pent roof, covered with a tarpaulin on the march. There are none made like ours. At Metz the engineers have an arsenal for the manufacture of sappers and miners' tools, sappers' cuirasses, and helmets, &c. Wagons and harness for the use of this corps in the field are also made here. The tools are boxed in sets, and the wagon bodies made to contain a certain number of each kind of boxes. The wheels and harness are similar to those of the field-artillery. This is the only establishment of the kind in France; a similar one has been established in Algeria. The workmen are enlisted men; a company of drivers is also attached to the corps. Immense quantities of engineer tools are on hand; and in one room (where are arranged the busts and portraits of distinguished engineer officers, with the dates of the different sieges they conducted) the walls and ceiling are curiously ornamented with trees and flowers made of shovels, axes, picks, &c.

The powder-works at Metz, conducted as at Le Bouchet (described in the report of the board of officers), have, of late years, been greatly improved—new one story stone buildings replacing the old wooden structures. These are placed in two rows about 100 feet apart, and the buildings about the same distance from each other. It is intended to remove near them the pounding-mills, and bring by canal the water to the new spot—the present mills being considered dangerously near the houses of the city. No accident has happened here for twenty years.

Cannon foundry at Strasbourg.—Sand-molding has recently been introduced, and with results highly satisfactory to the officers, who stated that, judging from the recent casting of two 24-pounders and three field pieces, by this method they would be able to effect a great economy in the cost of the guns without injury to the quality. The character of the metal of guns made here is of the highest order, of very even grain, and free from blemish. No new machinery has been introduced, and the director thinks that the government will not long continue the foundry here, as it is thought to be too near the frontier. The present price of brass guns is said to be 2.45 francs the kilogram (22 $\frac{3}{10}$ cents per pound). Recent experiments before the commission of artillery at Paris have shown that, with the elongated cartridge and an occasional charge in the length of the wad, French brass 24-pounders will endure 3,000 rounds with service charges. Four guns tried were *not unserviceable* after this proof. They are finishing under an order, for trial, a number of heavy pieces of *wrought-iron* recently made at St. Etienne. Two 10-inch mortars, one 24-pounder, one 16-pounder, and one 32-pounder howitzer have been ordered. A 16-pounder, previously tried, endured a

great number of rounds; but a 24-pounder burst, after a few hundred, into many fragments. The officers do not seem to be in favor of wrought-iron, as, they justly say, to be of advantage superior to bronze guns (enduring as theirs do now), they must endure more than 6,000 rounds, and only cost half as much per pound, as they cost *four times* as much labor to finish. Russian copper and English tin are used for the bronze guns. They have recently purchased more than 200 of their own old guns (taken in action) from the English for recasting. They employ many laborers about this establishment and at the arsenal at one franc per day, and well-grown boys at ten sous.

In examining the timber-sheds at the arsenal I was shown logs with two and three rows of sap wood enveloped in the good wood. The captain in charge of this department, who has had a great experience in timber, states that this is frozen wood, and that by counting back the circles towards these dead parts as years, these parts mark years noted for the coldness of the winter; for example, the years 1793 and 1828. He calls this, therefore, frozen timber, and always rejects it. Logs are sawed into carriage timber by hand at Strasbourg and Lyons, and by water power at Metz Arsenal. Strasbourg is the chief station of the artillery. Three regiments were there at the time of my visit—(one the 15th, or pontoniers). Practical and theoretical instruction is given to the men. In the polygon every year extensive field batteries are erected under the rules established for actual service. Large details of officers and men are daily made during the summer for such duty, and afterwards for firing at the butt. School rooms are sustained for the men and non-commissioned officers. Quite an extensive course of study is given to the last, embracing mathematics, grammar, geography, the principles of the sciences of artillery and engineering, and instruction in right line and pen drawing. Many very handsome specimens of their advancement in this branch ornament the school rooms. A very high degree of instruction is given upon the anatomy and care of the horse. Besides the usual skeletons and specimens of good and diseased limbs, &c., a very curious and interesting model, showing the entire organization of the animal, with the veins, nerves, muscles, bones, &c., as in life (and offering a true view of every part and of its mode of action and use), has recently been purchased at a cost of 5,000 francs, merely for the instruction of the non-commissioned officers of the artillery, all of whom are, in turn, stationed here with their regiments. The privates are taught grammar and arithmetic and simpler principles of their branch by officers and by mutual instruction, under charge of a non-commissioned officer. An extensive and valuable library, liberally supplied by the government with new books as they appear, is open daily to officers. Reading rooms for non-commissioned officers and men adjoin it.

Fourteen regiments of artillery, of sixteen batteries each, and one regiment of pontoniers, are now in service. Officers (after two years' study at the polytechnic) assigned as *élevés* to the artillery (with those assigned to the engineers) are sent to the school of artillery and engineers at Metz; after two years of study here they join their regiments, remaining until promoted captains "*en seconde*" (the grade of our first lieutenant). They then are sent generally to some one of the artillery establishments, arsenals, armories, foundries, &c., to remain until again promoted as *first captains*; they then go to their companies or remain as subdirectors at the establishments. Those remaining are generally expected to succeed to the command and would not probably again join their regiments, as their experience is considered essential in the management of their special manufactory. Promotions are made throughout

the fifteen regiments, and the officers are interchanged, at times, to familiarize them to the different duties as pontonier and artillerist. The officers of the companies of the train are generally promoted from worthy non-commissioned officers. They have no promotion with artillery proper, and are always subordinate to them when together on duty.

The storehouses contain large supplies, both at Metz and Strasbourg, among the rest, about forty batteries of field artillery complete at each. No process of seasoning, other than storage in open sheds, is now approved of for gun-carriage timber. Naves are found to split less, if the block has been immersed in water for some years before working. This plan is followed, therefore.

Sub officers on duty at the arsenals are assigned to the charge of the shops, or of storehouses, and the care of material, each supply of which must be inspected by a board.

At Lyons a new arsenal has recently been constructed, intended as a supply arsenal to the army of the Rhine and to the corps operating in the Mediterranean. The general plan is a continuous building, inclosing two courts, with large smiths' and carpenters' shops (detached) in the interior of the first court. It is very extensive, and the buildings, though differing in height, are of uniform architecture. At present one portion is occupied as barracks, and many large rooms are devoted to the making of musket cartridges by the men of the regiment stationed there. The storerooms for tools, iron, &c., are very neat and well arranged. The principal operations at present are, in the repair of carriages and in sawing timber for storage, and making iron-work for new carriages. No steam-engine has yet been erected. The heavier pieces of iron, axletrees, pintle-hooks, ring-plates, and elevating-screws, are furnished all complete by contract.

The laboratory is within Fort Lamotte, in the neighborhood of Lyons. The buildings in use are temporary wooden sheds. An immense amount of ammunition has recently been prepared there. One order for the use of the army at Rome, received just before my arrival, was for two hundred batteries of field ammunition. Enlisted men, under the direction of a hired foreman, do all the work; an officer of artillery is in command. The careful directions of the *aide mémoire* do not produce as neat looking supplies as we are accustomed to see. Shells were all prepared with the wooden fuse. Port-fires and slow-match were issued, and no friction tubes or percussion wafers. (The tubes may have been issued from Paris, where they are made.) Here they have received no orders to change the usual articles of issue. The ammunition is packed in very rough nailed boxes.

At Turin is the main arsenal for the Kingdom of Sardinia. The operations here, under the favor of the late King, who was interested much in artillery, had given a high reputation to that corps. Colonel Pictet, a Swiss officer in the Sardinian service, has been engaged here many years in experimenting upon rockets; and a Sardinian officer has proposed a heavy iron cannon, loading at the breech. I understood that he had obtained results from this gun sufficiently important to induce the English, French, Belgian, and Prussian Governments to obtain such a gun for trial. These guns I saw at Woolwich, Paris, Liège, and Berlin, but in neither instance had the experiments proposed been prosecuted; owing, it is said, to the interruptions produced by recent political troubles at the time of their arrival. The gun has a bore of eight inches; is square at the breech, curving down to a cone in front of the charge. The load is inserted in the axis to the rear, and a wedge secures the breech-pin. Colonel Pictet's experiments have all been conducted

with the stick-rocket, and he says, in a work published by him upon the subject, that he has obtained many accurate and important data in his long course of experiments, commending the use of rockets in war. *Practically*, but little has been obtained in Piedmont, as the fabrication has been suspended; and, at the recent battle of Novara, no rockets were carried in the field by the Piedmontese. An officer of their artillery, present in the action, told me that rockets were used against them by the Austrians *without effect*, but that their artillery men were picked off by the Austrian rifles, at 450 and 500 meters, very fatally, by men stationed on the church-steeple of Novara.

The arsenal is a large establishment, embracing a brass foundry, with the necessary lathes and extensive shops for the manufacture of carriages, implements, &c. Their small-arms and iron cannon (for coast and garrison service), some of which last have recently been introduced, are obtained by purchase. The field-carriage stock is made of two pieces, separated by transoms and rondelles in front, but united under the lunette. They have but one size of field carriage, upon which 8 and 16 pounder guns and 12-pounder howitzers are carried. The trunnions of the small guns are enveloped by bands to make them fit the cap-squares, and the elevating bed with its box and screw is movable. The field-gun axle is made of two pieces, overlapping each other at the center about 8 inches. A large washer, with *two pins* passing through the lap and *one* strong bolt through the cap and axle body, secures the junction. The axle-bed is very large, about 7 inches by 9 inches, and the axle is set in the lower rear corner, so as to have more timber as a cushion in the recoil. The axle is 3 inches square at the shoulder, beveled down to $\frac{3}{4}$ of an inch by 3 inches at the lap. A small sheet-iron box, holding slow match and some tools, is to replace the wooden boxes for the same object on the axletree-body (all of those *in wood* were jolted to pieces during the recent short campaign). The axles stood their service very well. Caissons and battery-wagons have axles in one piece. All carriages have *shoes* and no *lock-chains*. The sponge and rammer is carried as in the Gribeauval system—a hinged piece with a heavy end closing the mouth of the sponge-rest hook, thus:



The handle drops in, but it is necessary to raise the heavy end to get it out. Ammunition boxes are covered with cushions; no sheet-metal on tops or sides, except at the corners. Baggage wagons for officers' and men's baggage are attached to each battery. These are made of slat-work sides with uniform wheel and limber. The traces are of rope, like the French. The officer stated that in his battery not one was broken during the recent campaign. Siege-carriages are made like the field; but the limber has low wheels. Shot-wagons accompany the pieces. The omnibuses of the city were used as ambulances during the late action, and the officers stated that they were so well pleased with them that similar carriages would be established as the model.

An extensive military library, furnished by the King for the use of the officers, has attached to it pattern and model rooms, containing a large number of old and new arms; pattern carriages for field, siege, and garrison service; a model ponton and rocket train, &c. The pontons are of sheet-iron, made in sections, like the Pennsylvania canal boats. The King's Arsenal is said to contain the richest collection of old armor for

man and horse now existing with an extensive assortment of old and new arms from the earliest dates to the present time, all beautifully arranged in a wing of the palace. I should have mentioned that the axle-arm for carrying the spare wheel in the field caissons is hinged so as to permit a motion in the vertical plane. This is said to save the wheel from being broken in rapid descents, as the rim is liable to hit the edge of the bank. A like arrangement is adopted for the trail handspike, fastened by a pivot-pin to hinge sides fixed on the lunette. When not used it is *folded back* on the stock; and when needed a pin (hung by a chain) passes through a hole in the iron end of the handspike, securing it to an iron upright on the lunette plate, thus:



A sweep-bar is attached to rear of limber to relieve the pressure of the pole.

Switzerland has its main arsenal at Zurich. A new storehouse, of stone, contains about 100 field-carriages and a ponton-train complete, with a small supply of timber. But little work is in progress. Cannon and small-arms are purchased by contract. Carriages are made in the government shops, which are small, dark, and inconvenient. The carriages on hand are generally of the Gribeauval pattern. One or two batteries of stock-trail are in store, and those under way were of this kind. They have axle-bodies and small wooden boxes outside the cheeks. The handspike is hinged like that of Piedmont. Eight-pounder guns and 12-pounder howitzers go on the same carriage. There is an arsenal, containing a large collection of antique armor and weapons. Among the last, William Tell's bow; it is of steel. Zurich has an immense command of water-power, and many fine manufactories have of late years been established here; among the rest, one for the fabrication of steam-engines and machinery, and Swiss rifles. The company have in use a large number of very fine machines of the most improved kinds for planing, turning, boring, and punching heavy work. I was told that they receive orders for work from Naples, Russia, Italy, Germany, and Austria. They are now building iron-boats for the Austrian government for use on Lake Como. As they receive the most of their iron and many of their machines from England, the cheapness and high character of the labor used is evident from the extent of their orders. The rifles are finished in a great measure by piece-work. The contract price is only 36 francs (\$6.75). A machine has just been finished here for driving congreve rockets for the government. The pressure is given by an hydraulic press. It has been tried, but was to be changed for further trial in some particulars.

Liège—Belgium.—The armory already described is (with the laboratory and foundry) the only military manufacturing establishment in Liège. The grand arsenal of Belgium is at Antwerp. It receives from the foundry here all castings necessary. Colonel Frederix, the polite and intelligent director of the foundry, among many other favors shown me, gave me a list of the cost prices of the different carriage castings, for several years back, made here for the arsenal at Antwerp.

The foundry, by aid of work constantly ordered by different governments (with the sanction of the Belgian government), is kept busily employed (two steam-engines being constantly in use), and, by Colonel Frederix's energy, is in as advanced a condition as any establishment in

Europe. Spanish officers, sent by their government, were studying the course of operations here at the time of my visit, and I was told that there are, generally, some foreign officers residing in Liège, attracted by the deserved repute of the work from its foundry. Recently over one hundred guns had been made here for Holland; a large order for the fortifications at Mayence was in progress; working patterns for Spain and for one other government have been nearly finished; and an application had just been received from Colonel Dundas to cast some trial guns for the English Government.

As the guns made for Holland differ materially from any others made previously it may be interesting to report some of the details concerning them, given me by Colonel Frederix. The pattern was proposed by Colonel du Bruyn, a Dutch artillery officer of high consideration at home, and its peculiarities are in the weight of the gun and the direction of the vent. As the guns were needed to arm forts, Colonel de Bruyn conceived that they might be made much lighter than guns for use in siege operations; as the service charge is one-third for the first and one-half for the siege guns. The gun proposed (a 24-pounder) had therefore less than two-thirds (about eight-thirteenths) of the usual weight, and the vent is inclined at an angle of 47° with the axis, as the best direction to escape injury from the blast. The exterior form is *cylindrical* for the length of the charge and *conical* thence to the swell of the muzzle. Two proof guns first ordered were cast at Liège with great care and of the best metal. The following are the principal dimensions, in United States inches and meters:

	Inches.	Meters.
Caliber of bore.....	5.97	0.1517
Diameter of base-ring	17.75	0.4508
Diameter of cylinder.....	17.25	0.4380
Diameter of com. of reinforce	16.93	0.4300
Diameter of end of reinforce	10.24	0.2600
Diameter of swell of muzzle	12.60	0.3200
Diameter of face of muzzle	6.30	0.1600
Total length of bore.....	101.60	2.5800
From rear of base-ring	104.36	2.6500
Distance between rim bases	16.96	0.4306
Length of trunnions.....	5.21	0.1324
Diameter of trunnions.....	5.75	0.1461

Proposed weight 3,891 pounds (1,765 kilograms). After finishing, No. 1 weighed 3,863 pounds (1,752 kilograms); specific gravity, 7.227; and No. 2 weighed 3,922 pounds (1,779 kilograms); specific gravity 7.229.

No. 1 was first fired; charge 3 kilograms of powder in a bag 0.1417 meter in diameter and 0.26 meter in length, a wad of hay 0.45 kilogram in weight and 0.10 meter in length, and a cylinder of iron terminated with a half sphere, weight 23.47 kilograms, smooth and of usual caliber. After 506 rounds and on the sixteenth day the muzzle broke off square in advance of the muzzle ring, in two fragments, divided vertically lengthwise of the piece. This was supposed to have been caused by the wedging and breaking of the cylinder, but may have been due merely to the vibration caused by the discharge. The firing was continued, everything the same, to the 721st, when another fragment was detached from the piece, about one-fourth of it in size—weight 202 kilograms—the upper and right portion of the chase. By a pile-hammer the chase was broken off evenly, and the remaining part fired with 1 kilogram of powder and a cylinder, when it burst into three pieces. Objections having been made that the use of the cylinder instead of balls did not furnish a fair practical test, piece No. 2 was fired with the same charge of pow-

der, a wad, and two 24-pounder balls, with a wad between; the same kind of bag for the powder, wads 0.1 meter long, and 0.45 kilogram mean weight; balls new and smooth, weight 11.8 kilograms. After firing 2,000 rounds, at forty intervals, the piece remained perfectly good. It was then subjected to the water-proof, under a pressure of 560 kilograms to each centimeter square of surface, without effect. The only change is the enlargement of the vent, and a maximum increase of bore of 0.0007 meter (0.0275 inch). The maximum increase of the bore of No. 1 was 0.0029 meter (0.114 inch).

This proof, considered by Colonel Frederix as the most extraordinary on record—the relative weight of gun and charge being considered—and proving the high character of Liège castings, was deemed so satisfactory as respects the pattern of the gun, that the Dutch government immediately ordered 104 pieces, and promise a new order for 100 more. As the cost of these guns is at the rate of fifty francs the 100 kilograms, the difference of price in purchasing 200 of these instead of the heavy 24's, weight 2,820 kilograms, is 105,500 francs (\$19,254). Colonel F. thinks it *proven* that the cylinder does not fairly replace the balls in proof-firing; that the vent, inclined to the axis about 47° , is not injured so rapidly by the blast; that the bottom of the bore in iron guns should be a hemisphere, and that the best metal for endurance with large charges is not always the best for *service* charges. I quote below a sentence from one of his reports, interesting to us:

“The artillery of the United States have recently made proofs *à outrance* of 12 and 6 pounder guns made in Sweden, England, Belgium, and the United States. The most of these pieces have only resisted 38 rounds, 20 with $\frac{1}{3}$ the weight of powder and 1 ball, and 18 with $\frac{1}{2}$ the weight and 2 balls. *One* could only endure 13 rounds with this last charge after the first 20 rounds. It seems to me that the unsatisfactory results from this proof *à outrance* is due either to defects in the construction of the pieces (meaning *the form*), or to the quality of the United States powder—perhaps very *brisante*—and that all the pieces with a charge of $\frac{1}{3}$ or $\frac{1}{4}$ weight of powder of suitable quality and 1 ball would have endured and perhaps exceeded 2,000 rounds.”

Speaking upon this subject, he expressed great sorrow that the “*one*” worst piece above alluded to should have been his own, and thought it ascribable *in part*, at least, to the fact that with Belgian iron the *outer scale* (which *we turn off*) was necessary to the endurance—more so, perhaps, than with other iron. His experiments have induced the government to forbid the turning of iron guns.

He has proposed two new mixtures for casting iron guns, which he thinks will give a material more resisting, *and at a less price*, than those used previously. The proportion of new or pig ore to old ore (pieces of guns) heretofore has been 80 to 20. He proposes:

(1st mixture),
 $\frac{1}{3}$ new ore (made with charcoal),
 $\frac{1}{3}$ new ore (made with coke),
 $\frac{1}{3}$ old pieces (made with charcoal),

and (2d mixture).
 $\frac{2}{3}$ same.
 $\frac{1}{3}$ same.
 $\frac{1}{3}$ same.

Mixtures of good ores of *different* localities giving better results than the exclusive use of one. A trial 8-pounder, made after the first *mixture* proposed,

($\frac{1}{3}$ new ore— } of 4 different ores, the trial guns from which endured re-
 spectively to 62d, 59th, 58th, and 57th round;

$\frac{1}{3}$ new coke-ore— } of two ores, the trial gun from one of which endured
 to 56th round;

$\frac{1}{3}$ pieces of the 4 trial guns first mentioned,)

endured to 61st round, breaking into 38 pieces found and 20 kilograms missing, showing the best indications of good metal in every respect.

A trial 8-pounder, made after the second *mixture* proposed of the same ores as above, burst at the 62d round into many fragments, showing, likewise, the best character of metal.

The proof series followed in Belgium is as follows: 20 with $1\frac{1}{2}$ kilograms of powder, 1 ball, 2 wads; 20 with $1\frac{1}{2}$ kilograms of powder, 2 balls, 2 wads; 10 with 1.958 kilograms of powder, 3 balls, 2 wads; 5 with 3.916 kilograms of powder, 6 balls, 2 wads; 10 with 7.832 kilograms of powder, 13 balls, 2, or till burst.

A piece styled a *negative masselotte* is molded and cast with the gun. It is at Liège an elongated square *two and a half to three* calibers long, of the sectional dimensions of the knob of the cascade. The object is to heat the mold sufficiently to prevent the neck being chilled. The knob is turned to size from this. To prevent the entrance of the floating scoria into the trunnion holes Col. F. proposed applying thin cast-iron plates of proper shape in the mold over these holes. The plates, perforated with small openings for the passage of the pure metal as it rises, will be entirely melted when surrounded by the metal. This plan, though perfectly successful in some instances, failed (through the carelessness of the workmen in placing a sheet-iron instead of a cast-iron plate or in using a rusty plate of too hard metal, Col. F. thinks) in one or two instances; and from the report against its use by a board of officers, it has been forbidden. But Col. F. thinks it a great improvement, and he showed me very complimentary letters from the director of the Rouelle foundry, advocating its use and stating that in casting several hundred guns by this method *not one* had shown a defect in the trunnions—such defects being usual under the old system. The plan pursued at some of our foundries of covering the trunnion orifices with a sheet of metal attached to a handle in the hands of the workmen (to be raised gradually as the metal rises in the mold), may possibly be less advantageous than this mode. As the best test of the quality of cast iron for guns, a sample plate $1\frac{1}{4}$ inch thick and 4 inches square is taken from each gun in turning, near the face of the muzzle, and broken under a drop-hammer by blows upon a steel conical plug introduced into a circular bored hole in its center. The hole has a diameter of .65 inch, and generally about 18 blows with the ram are necessary to break the plate. The plug increases in diameter at the rate of $\frac{1}{4}$ in 1 inch. The wedge action under shocks is considered to represent more nearly the action of repeated charges upon the gun than that by pulling or snapping. The machinery in use seems to be very good and to work well. A new machine for turning trunnions (in which *both* are turned at the same time, and all the gearing and connecting parts lie *under the work* so as not to interfere in lifting it on or off the machine) has been in use for a few years. The cost of turning per gun is said to be only 3.67 francs (1.67 cost of power and 2 francs cost of labor), and the adjustment *securing* the proper direction of the axis of the trunnions *perfectly* simple and easy. I have obtained a description of this machine—said to be superior to any in use in Europe. I was present one day at the proof trial of an 8 pounder test gun, cast of metal obtained for making 24-pounder howitzers (Prussian pattern), for the fort at Mayence. The piece burst at the 56th fire of the series.

A very tasteful and substantial cast-iron rack for small-arms has been adopted for the Belgian arsenals. It is made in the shops here. The cost per section containing 600 masks is stated to be 471.20 francs, labor, materials, and proportionate expense of the establishment included. A description and drawing has been obtained.

Laboratory.—This is under charge of a lieutenant-colonel, assisted by several officers. In addition to the operations described for filling caps, the chief work consists in preparing field and small-arm ammunition. The buildings in use were erected for barracks, on a high hill above the town, and are now occupied (in the upper stories) by the laboratory officers and the enlisted company of workmen; and *below*, as shops.

Sabots for field-guns are made of rolled paper; this being prepared of proper diameter, tightly rolled and dried, is then cut into lengths by saw, and turned (in hand-lathes) *as wood*. They are made at one-half the price of wood sabots, and are uninjured in transportation over the roughest roads. For 6-pounders the ammunition is fixed; the cartridge being tied in a groove in the sabot, short *rims* of the rolled paper, making a regular cylinder of ball and cartridge by placing one under the ball and one over the powder, are tied by cross straps of linen cloth, $1\frac{1}{2}$ inch wide, to the stand; the ends of the ligatures on the powder end serve as a handle in lifting the stand.

In making small-arm ammunition a cap is tied to each cartridge before bundling; no cap pouch being used by the Belgian troops.

Shells are not fixed to the cartridge. The fuse-hole is placed so as to make an angle of 50° with the axis of the piece when in the gun, and the fuse known as *Colonel Borman's fuse* is used. Extensive experiments have been made recently with shrapnel shells; and the Belgians claim to have obtained some important information in the theory of the movement of projectiles not practically understood by others. The position given to the fuse-hole of the shell, and the manner of placing the balls in the shrapnel (now practiced by them), are said to be the results of these experiments. The details are kept secret, but one object is understood to be to have the center of gravity of the projectile in the upper front quadrant, as our experiments have also proved to be advantageous. The fuse is very simple and cheap, and is spoken of in high terms by Belgian and Dutch officers, being adopted for shrapnels in those countries, and in Würtemberg and Nassau, with a slight alteration. The results of practice in the Polygon of Brassehaet with 12-pounder shrapnels, reported by the board of officers, show, in 100 fires, only *four failures*; and of these, *one* prematurely exploded before reaching the target distance, 1,400 paces, and the three others, fired at 800, 1,200, and 1,400 paces, passed through the target, and exploded in the bank of earth behind. The composition of the fuse is three parts tin and one part lead. It has stood a charge of two kilograms of powder in the 12-pounder shrapnel, being over one-third the weight of the projectile, and has been tried with success in all calibers from 12-pounder to the 8-inch Paixhans. The cost at the laboratory of the fuse, complete, is said to be only three sous.

Friction tubes are not manufactured, and they are just commencing to replace the heavy iron percussion hammer, similar to the earliest tried by us, with what is called the *Dundas lock* in Belgium, being Hidden's plan of escaping the blast, *reversed*; that is, the spindle of the hammer *fixed to the hammer* and sliding in slots cut in the *side supports*, exactly similar to one made in 1839 at Fort Monroe Arsenal. Colonel Dundas told me at Woolwich that he had suggested the plan (1846, I think), upon seeing Hidden's lock and combining it with the English lock then in use. The Belgians had not decided upon a cap for the lock (using a tube at present something like the English), but they had made a pressed copper thimble, similar to ours of paper, and were trying that.

At Mr. Fabisse's machine factory (Liège) he has in use an atmospheric drop-hammer worked by belting from the steam-engine. He considers

it more economical than the steam-hammer and preferable to it also in having no drip about it from the condensed vapor. An iron cylinder reservoir is filled with condensed air by a pump worked by the engine. The hammer is raised by letting in this air below a piston, and depressed by its own weight, aided by pressure above and an exhaust pipe below. It worked perfectly. Another forging machine was used for forging cones from the steel rod. The hammer is at one end of a horizontal lever; under the other is a spiral spring. The steel nose of the hammer, which alone touches the work, is movable, resting on a shoulder downwards, and upwards (or above it) is a wedge shaped piece (receiving the force of the blow), moved by a handle (in and out) held constantly by the forger. Above this wedge was a second short spring. The blow is therefore given under a double spring, assimilating it to the blow of a hand hammer. This pretty machine might be advantageously used in small forging. A small lad did a great deal of work with it, only assisted by another, who handed him the heated rods. The machines for turning and finishing the cones are very numerous; the cone requiring to be handled for each operation. After the screw is cut the cone is held to the chuck by using its own thread, and the work is greatly quickened by having *four* pulleys with two belts. The cone screws itself into the chuck. The work is done. A reverse motion given, the cone unscrews itself, and the direct motion again applied, and a new cone secured without any stop and without a jar or jerk.

Field-carriages.—Stock-trail carriages have been adopted; but those in use in the batteries at Liège are of older pattern. In Belgium, as in Holland and Prussia, caissons do not accompany the pieces, except in column of march, the number of rounds in the limber-box being esteemed sufficient for the early movements of the action. The advantage of this, in saving the wear and tear of caissons on drill, is very great; and as the present system makes each caisson follow its piece in all maneuvers (a part easily learned when required), the argument is that during *peace* their presence on the drill-ground is not necessary. The boxes of caissons cannot be exchanged; a second limber is sent forward to replace the empty one, which goes back to the line of caissons to be refilled. The percussion-lock is attached to the knob of cascable, a very large and heavy hammer. Traces of rope. The middle horses pull from the bar, *direct*, by extra traces passing through rear horses' trace-pipes and sustained by straps from the collar. The straps supporting the lead-horses' traces start from the top of the rump and extend well to the rear so as to prevent the horse from getting his foot over the trace. Habitually the men do not ride on the carriages, but the 6-pounder can carry three men on the limber and two on the axle-body boxes; the 12-pounder only three on the limber. Handspikes are fastened by a hinge-joint to the lunette plate, as described for the Sardinian service, except that the key, keeping it in place for use, passes above the handspike instead of through it. Horse collars fasten *at bottom*; prolonges are of chain. A *shoe* is used instead of lock-chain. Sponges and rammers are carried *above* the axle.

Berlin Arsenal.—Field-carriages have not been changed since the report of 1840. Many systems of seasoning gun-carriage timber, tried since then, have been successively abandoned; among the rest, *smoking* had been tried, and much of the timber now on hand is marked with effects of this plan. At the arsenal a steam-engine is now in use, and its power has been applied to most of the machines. One-half of the workmen now employed are soldiers, receiving a small extra compensation; the rest, citizens, who receive from 5 to 7 thalers (\$3.50 to \$4.87)

a week. The tire-oven and machinery work very well; 100 tires can be set in *one* day by *four* men. This has been described.

The chief novelty here is a wrought-iron garrison carriage, which admits of being used either as a *platform carriage*, without chassis, or as a *casemate* or *barbette carriage*, with the chassis, and it can also *transport its gun*, by means of a field limber, like our barbette carriage; it is composed of three chief parts: the *chassis*, *top carriage* proper, and a *top carriage frame*. The chassis consists of a tongue and two rails, with three transoms bolted together. It has a pintle-tongue in front to receive the pintle-bolt, securing it to the "*small chassis*" of wood. A pair of rollers sustain the center, and move upon a traveling-circle. In the end of the tongue, in place of a prop, is a large-headed bolt, screwing into the tongue, with its head upon the ground; by turning this a greater or less inclination can be given to the chassis. The *top carriage*, very similar in shape to our *cast iron* top carriages, has two sets of trunnion beds and a movable pointing-bed, admitting thus of receiving the *three* different calibers and lengths of heavy guns in the Prussian service. Movable trunnion bed-plates can be attached in either bed, and the elevating-machine advanced or withdrawn to suit the piece. Two axletrees, acting also as assembling bolts, with projecting arms to receive rollers, allow a rolling motion to be given front and rear, and make the carriage thus suitable for use on a *platform*. Taking off the rear rollers (which are smaller and less thick through than the front), and placing the top carriage on the chassis, the rear axle rests upon the tongue, and the ends of the cheek upon the rails. The front rollers also run upon the rails. It is now as used for *casemate* service. To make it a *barbette* carriage, the top carriage is lifted up and bolted upon the *top-carriage frame* (made similarly to the top carriage), having a forward axletree with arms, which receive wheels and rollers similar to our barbette wheels, and a rear assembling bolt, which rests upon the chassis tongue, and cheeks resting upon the chassis rails. The projecting arms of the top carriage are not in the way of its free use as a barbette carriage. A movable fork-bar hooks into two of the rear assembling bolts, *above one* and *below the other*, having a pintle hole which fits upon the pintle-bolt of a field limber. The carriage can be dismounted from its chassis, as with our barbette carriage, and can thus transport its gun. The captain told me that the carriage had been extensively tried and adopted. He spoke of its service very approvingly. It appears to be very narrow for its height when mounted en barbette; but he said that an 8-inch howitzer had been fired from it 200 rounds without injury, and that, when struck by a shot fired at it (with a gun upon it), it was repaired by replacing the piece struck, without dismounting the gun.

Stores of all kinds are prepared here for the depots throughout Prussia. Much of the work is done by piece-work out of the arsenal. Some 200 workmen are thus employed and 100 within the arsenal.

Spandau Powder Works.—One of the neatest and best-kept public establishments I have seen abroad. The grounds are nearly insulated, a bridge connecting them to the armory grounds. The buildings are numerous, of brick, and (where necessary) separated from each other by traverses of earth. Major Heim, o' the artillery, is in command, and Lieutenant Kayser adjutant and assistant. In the absence of the Major, Lieutenant K. accompanied me through the works, explaining fully, as far as his orders permitted, all the operations. As this is one of the most recently finished powder factories and one of the few public establishments abroad not encumbered by old fashioned structures, it may be interesting to men-

tion some details of its construction. The officers' quarters, extensive and neat buildings, stand near the bridge; the only approach to the shops thus passes the offices adjoining; and no soldiers (a rare circumstance) were seen within the command. All the coal used in making powder is distilled in a large furnace-house containing twenty-five cylinders with arrangements for collecting the residue of the distillation and for conveying to a great height the noxious gases emitted. The fuel used is turf. Refineries for sulphur and for niter with two store-rooms attached. A pulverizing house for charcoal, one for sulphur, and two mixing houses for the combined ingredients (placed in copper barrels containing a number of brass balls) are reserved for each of these operations. These houses have water-wheels in their basements, and only one large barrel in each room. There is also a house where the powder is moistened, after being spread upon tables; another for pressing it; another for granulating and sifting (with a steam-engine built adjacent, but detached from it, and from which steam is conveyed to the drying-house); another for glazing; another for hand-sifting and separating the grains (in part of which is a weighing room, where the powder is weighed, measured, and barreled). The copper barrels for rolling the powder are about five feet long by three feet diameter; the brass balls about six inches diameter. The time of rolling is considered an important item and is kept a secret. The most of these buildings are neatly matted or carpeted, and every effort made to prevent dirt or carelessness. 110 pounds of powder are placed first in a linen bag and then in a barrel like ours with copper hoops, but without a proof plug. The magazines are not arched. There are five (I think) of them, about fifty by twenty-five feet. The materials are said to cost 15 thalers (\$10.39) for the 110 pounds, and the government charges 30 thalers (\$20.78); furnishing several of the smaller German states. Only two sizes of grain are made; both seem excellent, hard, clean, and of good taste and color. They have in Prussia, I understood, a cannon and musket *eprouvette*, but here the proof is by mortar *eprouvette* (now of brass—to be in future of iron). The charge of charcoal in the cylinders is distilled in from eight to ten hours. The acid product is sold to leather-makers and cotton-printers. Two explosions have taken place here since the commencement of work, but neither from the powder. One, very violent, was from the restrained gas of the distilling cylinders; the other from the ignition of the sulphur in the pulverizing cylinders. The cause of this last is as yet unexplained, and the same method has been continued without subsequent accident. East India niter and Neapolitan sulphur are used.

In the grand arsenal at Berlin there were none of the new muskets. A very handsomely finished Russian field-battery, said to be part of the marriage cadeau of the present Queen, and some beautifully ornamented East India pieces, presented by the Queen of England, are stored in the basement rooms.

HOLLAND.

The arsenal, armory, laboratory (including cap factory already described), and a small iron foundry, are at Delft. All are under the command of a general of artillery, with a director (a major), a sub-director, and several subalterns assigned to each establishment.

The arsenal is quite extensive, employing two steam-engines—one for trip-hammer, shears, and blowing cylinders; the other for iron-turning lathes, circular and upright saws for timber, cap-making machines, &c. In the trip-hammer shop is a small furnace, where the scrap iron is worked up into axles and heavy shapes. A captain receives and issues

all supplies; a lieutenant is in charge of each shop, and a mechanician (at \$700 a year) superintends the machinery in all the military establishments at Delft. The trip-hammer forger receives 10 francs a day; other workmen from 2 to 3 francs. The axles of all field-carriages have the same arm, but there are three different weights—one for 12-pounders, one for 6-pounders and caissons, and one for store and baggage wagons. The first is made square, the second and third beveled between the arms, having the horizontal thickness less than the first, with the same vertical dimension; the same axle, body, and straps answer for all. Pieces of timber dressed to fit the vacant space are carried in the wagons, so that any one axle can be immediately replaced by any other. The same principle is carried out with the wheels—all having the same box, but differing in diameter of nave and in thickness of spoke and fellow. The same system is pursued with siege-carriages—the three weights of axles and wheels assigned respectively to the gun-carriages, transporting carriages, and store wagons.

For field service the weights are as follows: 12-pounder axle 56 kilograms, wheel 94 kilograms; 6-pounder and caisson axle 42 kilograms, wheel 77 kilograms; store-wagon axle 30 kilograms, wheel 68 kilograms. To be turned, the axle is bent, the arms turned by a hand-tool, and, when finished, heated and straightened. To keep the wheel-box in place the exterior of the small end is screw-threaded; a brass circular rim plate screws on this, and is fastened to the nave by two small wood-screws. The washer has a shoulder, catching against the linch-pin, which prevents its turning with the wheel. The mode of attaching the rear carriage to the limber is peculiar. It is the invention of Colonel de Bruyn, who kindly furnished me with a drawing of the plan, to which I beg to refer for an explanation. It is said to be difficult to make, and costly, but to steady the pole very well. Instead of carrying extra wheels on the caisson, as with us, they are carried upon a spare gun-carriage. A block of wood is fitted in the trunnion-holes, having in its center an upright axle-arm of double length, on which two wheels are placed. Spare poles are made with a hinge in the center, well secured with iron, to fold up in transportation in the battery wagons. The forge has a cylindrical bellows, occupying but a small space. The grate is very large, and they say they can weld an axle-tree in the forge. Two battery wagons for stores and two for baggage accompany each battery. That for the men is supplied with a large kettle for soup; a grate beneath and a movable smoke-pipe fit it, to be used in place in rainy weather. The limber-box is fitted up as a company desk, with writing table and pigeon-holes for books, papers, &c. A rail round the tops of the main wagons gives room for knapsacks, forage, &c. Traces are of rope, doubled for pole horses. Pole with a simple staple and straps. Prolonge of chain; used also to attach the shoe in locking. The shoe is hung, detached from the chain, on the rear axle-body. In shoeing horses they use throughout the country a foot-stool to rest the hoof upon. One of these is carried with the forge. Handspikes are hinged, as in Belgium. Ammunition boxes not transferable. Sponges of bristle, carried on top the axle. The limber-box is divided into three compartments with separate covers; 54 rounds of 6-pounder ammunition in the three. A kind of basket of hoop-iron is attached to the gun-axle body, in which is carried a stand of grape or canister, to be used at any moment of emergency.

Siege-carriages are not stock trail, but with flasks. The cheeks are of cast iron, bolted on to the top of the upper part of the flask. This can be changed for different calibers. The cast-iron piece contains trunnion

holes and traveling trunnion bolts. No cap-square is used. Front wheels are smaller than the rear. Mortar beds and wagons are nearly as with us. An ordinary handspike windlass is attached to this last.

In the model room of the arsenal a complete specimen of every carriage, *full size*, with its gun, implements, stores, &c., is kept in very nice order. The barbette carriage similar to ours in general features. A *movable wooden support*, to be placed under the middle transom of the chassis in firing, is issued with every carriage. The officer stated that before this was done the chassis were constantly failing. It has proved of great advantage. The traverse circles are made of timber with an iron plate for the wheel to run upon. They are made of three pieces, hinged to suit different calibers. These are likewise issued with the carriages, being thought preferable to stone circles. Attached to the traverse wheel of heavy carriages is a rack and pinion with a crank handle. The heaviest calibers are easily adjusted to the exact direction by this means. Under the transom and axle-tie of the barbette carriage a strong iron plate (bent over the transom and the tie) runs the whole length. The lunette is welded to it.

Several modes of preserving gun-carriage timber have been tried and abandoned. I saw some fine logs recently arrived from the Dutch East Indies imported as an experiment; they were of white oak with a fine, close grain. The timber heretofore used, a very good white oak, equal to any we have, is obtained from Belgium and Germany, and costs, when sawed and stored, 65 cents a cubic foot.

A ball-press, similar to that at the Washington Arsenal, is in use. In making the packing-boxes for the balls the end pieces are grooved for alternate layers, the lower layer fitting *s snug* by means of the width gained by the groove on the *left* end-piece, for example; and the next layer the same by the groove in the *right* end-piece; the third groove to the *left* again, and so on. By this means the balls of each layer rest in the interstices of the lower layer and can be transported securely without rolling in the box.

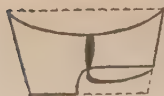
The foundry at Delft was not in operation at the time of my visit. It is small, and principally engaged in casting shot and shells, and parts of machines, by the usual methods. It is proposed to enlarge it, and cast cannon for arming the forts.

The *brass foundry*, casting all the brass guns needed, is at the Hague; a very ancient establishment, but turning out very good-looking work. Six 6-pounders and two 12-pounder howitzers form a battery; the last *not* chambered. These guns are shorter than ours, of about the same weight. The vent is bored at an angle of 47° with the axis, coming out through the breech. A hausse is attached to the base-ring, and the same hausse for long ranges can be applied at the center of the length. *Hammer supports* are cast on the knob of the cascabel. The gun is cylindrical for the length of the charge.

Mortar eprouvettes of bronze, theretofore in use, are to be replaced by iron. The gauges for measuring the bore and the ball are very neat and accurate. Light-house lanterns are made in the foundry shops here.

Laboratory—Delft.—A very neat yard and appropriate building. The chief work in hand was in preparing Colonel Borman's fuses, adopted for shrapnels. A percussion fuse is under secret trial, with very good results, the officers said. The workmen are enlisted men.

The cartridge is tied to the *shot*; sabot, as with us. But for the *shells*, a brass-wire hook is attached to the bottom of the sabot in a groove (so that the hook does not touch when the sabot is placed upon its bottom), and the cartridge is hooked on at the moment of the loading.



Here, as in Belgium, they were trying to introduce a proper cap for the cannon lock. One of ours which I gave the director pleased him very much. No friction tubes are made. Shells in use have the common wooden fuse.

Powder, in Holland, is furnished by a contractor; and it is said to be excellent. But two sizes of grain are used—that for cannon being larger than ours; the musket grain is a little finer. There is an idea with the officers here (and since, I have heard of it in France) that the powder for cannon should be of a large grain and as dense as possible. Colonel de Bruyn stated that they had now advanced a little in this respect, but that he thought a greater change from the present mode would soon be adopted. His cannon powder has 80 grains less in the gram than ours, and is very hard and dense. As stated before, he has proposed a light 24-pounder garrison gun, calculated for charges of $\frac{1}{3}$ only (its ordinary charge to be $\frac{1}{4}$). This last ($\frac{1}{4}$) he is anxious to introduce as the maximum for all guns. He expressed the greatest astonishment to hear that our field charges were *only* $\frac{1}{5}$, and desired me at once to return with him to the minister of war, and tell him of it, as (he said) he had a strong party against him in the proposed reduction to $\frac{1}{4}$.

The colonel invited me to see the company of horse artillery maneuver, in which they all seem to take much pride. The horses, harness, &c., were in fine condition, and the movements of the battery very rapid. Caissons do not appear on drill with the pieces. The chief peculiarities noticed have been previously described.

The barracks at the Hague are noble buildings, sufficient for 10,000 men. The army of Holland amounts now to 60,000.

ENGLAND.

Woolwich Arsenal, the great military establishment of the kingdom, embraces three distinct commands within its extensive walls—the foundry, the carriage department, and the gunners' stores department. The first is responsible for the supply, to army and navy, of guns, shot, shells, percussion locks, and carriage castings; the second for ship and land carriages with the necessary implements; and the third for gunners' and laboratory stores of all kinds. The director of each has to be guided exactly by established patterns, sanctioned by the board of ordnance, and all changes proposed are generally examined by a board of officers, where the three departments are represented, and can only be adopted after the final sanction of the board of ordnance.

The foundry department has recently been extended and improved. A steam-engine of 40 horse-power with many new machines conveniently positioned, having a suspended railway above them for moving the work from one to the other, has just replaced the old turning lathes and horse-power in use in 1840. All are now of the most improved English patterns, and the capabilities of the establishment equal to finishing completely six guns a week without increasing their ordinary time of work. The steam-engine generally works half-work (20 horse-power); it has two boilers with steam surface enough *in each* to work doubly as powerful an engine; *this* being now considered in England essential to effect a proper security and due economy in fuel. The grates (two to each boiler), after the fires are first lighted in the morning, are fed alternately, and but three times a day, the last time at 11½ a. m.—the large mass of heated surface keeping the water boiling from that time till evening. The consumption of fuel is only 20 pounds of coke to the horse-power per day. There are three traveling cranes in the finishing

shop, running upon iron rafter beams. The same cutter commences the bore in all calibers, a second then finishes it to a proper size. They adhere to the old method of clay molding; and Colonel Dundas thinks that there are dangers in the sand molding, which will yet cause it to be abandoned. In casting 6-pounder guns 13 molds are placed in the same pit, this being as great a weight of metal as his furnaces can heat. Three sets of calibers have been adopted for field-service, each composed of a gun and howitzer, viz:

On three sizes of carriages $\left\{ \begin{array}{l} \text{6-pounder gun and 12-pounder howitzer.} \\ \text{9-pounder gun and 24-pounder howitzer.} \\ \text{12-pounder gun and 32-pounder howitzer.} \end{array} \right.$

This last howitzer is much liked in practice, but, as yet, they have not used it in active service—none having been sent to the eastern army. The workmen are generally under age, and many of them apprenticed to himself. He has but two or three *men* employed in all the foundry operations, finding, he says, that these boys, properly instructed, are better than the best machine builders from private shops. They receive from 36 to 50 cents per day, and the men from 80 to 100—one, \$1.50. The cost of the finished field-guns is £135 per ton (\$29.17 per pound.)

Iron guns, shot, and shells are furnished (through his department) by contractors, and issued by him to the directors of the carriage and laboratory departments.

Percussion locks are fitted to all guns to be used with a tube of quill, one of which is submitted herewith. The lock has an iron hammer for iron guns and a brass hammer for bronze guns. The nose of the hammer is curved to fit half round the vent, and, by means of a slot in the supports, is drawn back to escape entirely the blast. It is attached by two pins and one screw to the gun. No friction tubes are used. Lock covers of cast brass are issued with the lock.

The *carriage department* has also been recently extended. A steam-engine to work a trip-hammer and furnish blast to two furnaces, made to work up the scrap iron, had just been started; three small engines (two locomotive) turned a horizontal planing-machine (the chisels attached to an iron wheel seven or eight feet in diameter); also a vertical face-plate with a horizontal axis (to which is attached the joined felloes of the wheels to be planed); a mortising-machine and a tenoning-machine. One of the locomotive engines blows the forge bellows—another pumps and turns lathes.

The timber used for carriages is excellent; that for ship carriages being of mahogany, teak, Cuban wood (like mahogany), or African wood. The *stocks* of field-carriages are always made of two pieces of English oak. They still make the tires in sections and place *wooden* boxes on the gun axle-bodies. The iron work to be painted is not filed or smooth-finished. The carriages appear to be very strong and substantial, much heavier than ours. Field-gun carriage-axles are made in two pieces. A roller is attached to the rear of the barbette top carriage, for the 8-inch solid-shot gun, which is made to receive the weight by a lever arm, when the carriage is to be run *into battery*; one man easily works it, and it saves much labor as well as wear upon the chassis. Cast-iron carriages are not expected to endure much firing; wooden ones are always kept ready to replace them at the forts in case of war.

Laboratory operations are conducted with much secrecy; some of them I was permitted to see, but I was not shown the shell-filling rooms or the rocket factory. A steam-engine drives such machines as they use in *making* caps, pressed balls, turning, &c. The eyes of sea-service shells are screw-tapped, and the fuse is of brass; for land service it is of wood

and the eye smooth. Although our new fuses have given excellent results, with as simple a mode of use as any perhaps, it may be interesting to state some few particulars of the English practice, received from an authentic source, as they have well satisfied themselves that they obtain from the shell, according to this practice, the best results of which it is capable.

The shells are made of the best and most resisting metal; the smallest caliber for the 9-pounder, the largest for the 8-inch howitzer:

Calibers of guns.	Charge of gun.	Charge of shell.	Number of balls.	Weight, empty.	Weight, loaded.
	<i>Lbs.</i>	<i>Oz.</i>		<i>Lbs. oz.</i>	<i>Lbs. oz.</i>
12-pounder howitzer	3½	4½	63	5 8	10 1
24-pounder howitzer	2½	6	130	11 1	20 7
8-inch howitzer	½	15	377	31 6	58 6
9-pounder gun	3	3	41	4 10	7 11
12-pounder gun	4	4	63	5 8	10 1
18-pounder gun	4½	5	90	8 8	14 15
24-pounder gun	6	6	130	11 1	20 7

Fuses are made of beech—one pattern for the 9-pounders and one for all other calibers. The wood to be perfectly seasoned and free from all defects, and to be *split* to size. The fuse, being very short, must be turned with care, and a half-inch of solid wood left at the bottom of the bore in boring. After boring smoothly the inside, a tool marks on the bottom point of the bore, and another (inserted in the bore) slightly and evenly marks the inside every one-tenth of an inch. The cup is formed by the usual cupping tool, and (by another tool) is made larger at bottom than at top. They are examined carefully and rejected for the slightest defect. The composition used is niter, eleven and two-third parts; sulphur, three and two-thirds; mealed powder, nine and two-third parts—passed separately through a silk sieve (very fine), weighed, and mixed. In driving, each charge is evenly put in and struck thirteen blows with a one-pound mallet. When charged within 0.2 inch of the top of the bore the fuse goes again to the lathe and is marked in divisions of two-tenths of an inch on the outside, between the bottom line already marked and the upper surface of the composition. It is then primed with two strands of quick-match, secured in holes bored in the cup, and the cup filled with mealed powder moistened with spirits of wine; this is pressed in evenly with a spatula and the top sprinkled with dry mealed powder; when perfectly dry the ends of the match are fastened together, a disc of oiled paper placed over the cup, the fuse capped with a piece of fine linen, covered with two coats of paint, and tied with a thread. The fuses are kept in the magazine in this condition. Before issuing them they saw them into lengths suiting the thickness of the different shells at the fuse hole, bore out the excess of powder from the lower end, according to the prescribed table of lengths, and mark the fuses *A*, *B*, and *C*, for the ranges of 650, 900, and 1,100 yards, and pack them in tin boxes painted *white* for *A*, *red* for *B*, and *black* for *C*. Four fuses are issued with each shell—three designated by the above letters and cut to prescribed lengths, the fourth left the whole length. These last are packed in canvas bags (the proper number for the shells of each piece) with two fuse extractors and two fuse augers in one bag, which is carried in the limber-box of the piece. The three tin boxes containing the cut fuses are likewise in this limber-box. In firing, canister-shot are expected to be used up to 650 yards, and balls or ordinary shells beyond 1,100, as it is only between

these ranges that shrapnels are of the most value. The angle of fire and length of composition for each caliber is as follows:

Letters of fuses and range.	12-pdr. howitzer.			24-pdr. howitzer.			8-inch howitzer.			9-pdr. gun.			12-pdr. gun.			18-pdr. gun.			24-pdr. gun.		
	Angle of fire.	Length of composition.		Angle of fire.	Length of composition.		Angle of fire.	Length of composition.		Angle of fire.	Length of composition.		Angle of fire.	Length of composition.		Angle of fire.	Length of composition.		Angle of fire.	Length of composition.	
	° /	In.		° /	In.		° /	In.		° /	In.		° /	In.		° /	In.		° /	In.	
A, 650 yards..	2 15	0.3		2 15	0.35		2 45	0.35		1 15	0.29		1 15	0.2		1 15	0.2		1 15	0.2	
B, 900 yards..	3 30	0.55		3 45	0.6		3 30	0.6		1 45	0.4		1 45	0.4		2 00	0.4		1 45	0.35	
C, 1,100 yards	5 15	0.8		4 30	0.75		6 00	1.0		2 30	0.6		2 30	0.57		3 00	0.57		2 30	0.50	

The rate of burning is five seconds to the inch for all fuses. The diameter of fuse hole at top is .65 inch for 9-pounders, and .9 inch for other calibers. (6-pounder shrapnels are still issued at times, but in a smaller proportion to the solid shot than in other calibers. The 9-pounder fuse is used, and the charge of one-third in the gun.) Most of the above information is derived from a publication by Messrs. Terquene and Favé, officers of the French artillery, and my apology for introducing it is, that it is more precise and definite than any previously published upon a subject of very general interest to officers of artillery.

In the arsenal yard at Woolwich I saw the new 8-inch iron gun recently adopted as a solid-shot gun in the English service. It weighs 113 cwt.; and, besides using a solid iron shot, it has been proposed to use a shell filled with lead in order to obtain great ranges at a low elevation. The shell is made as thin as possible, with projections within to prevent the lead from getting loose. Colonel Dundas spoke very favorably of the gun, stating that the experiments which determined its adoption had been very interesting and satisfactory in the length of range and accuracy of fire.

Many fine large sheds have been recently erected within the arsenal, after the style introduced in many railroad depots in this country and abroad, supported on cast-iron pillars with rod-iron roof frames, and covered with framed glass or corrugated sheet metal, the partitions being also of these sheets. The shops for working up scrap iron, for painting and storing carriages, for planing machines, &c., are so covered. While cheap and fire-proof, these buildings are extremely tight, convenient, and tasteful, and their more general use at our arsenals would, I think, be found advantageous in the increased comfort and security (especially at the southern arsenals, where there are no heavy falls of snow).

In lubricating machinery, in the English and in some of the Belgian establishments, I notice they use soap-suds instead of oil.

There are in Paris or its neighborhood many institutions forming a part of the military establishment of the country, a few remarks about which may be permitted, though *all of them* are not among the novelties in military matters to which my attention was particularly directed. As similar institutions have been, in whole or in part, established in the different capitals of Europe, and full descriptions of many of them may have been published, I will merely mention a few peculiarities obtained when visiting them. The *Polytechnic* and military schools for officers

are supplied with students by selections made from all the schools of France by a standing committee of examiners, who visit in turn all parts of the country. The most promising of those desiring to enter the staff corps of the army, between the ages of 16 and 21, go to the Polytechnic, others to St. Cyr or Saumur. At the first they remain *two* years, and after examination are assigned, according to the wants of the service, in a prescribed order, to the different corps, according to their class standing, to be varied at the request of the student when not interfering with those above him. Those assigned to the *engineers* and *artillery* are sent to the special school of these corps at Metz, where they remain two years, and then go to their companies until promoted. Those assigned to the *civil engineers* (for the construction of roads and bridges and public buildings), and those for the engineers of the *marine* (coast survey and foreign duty) go to the offices of these corps in Paris. Those for the *general staff*, to the school of Paris, where they remain two years; thence to the infantry school of St. Cyr, and thence to the cavalry school of Saumur, for short periods; and then they are sent to companies in the field to serve until promoted. Two of the graduating class of the Polytechnic, each year, are selected for the *tobacco régime*, and are sent, after graduation, to the government factories to acquire their proper experience for administering those establishments.

The schools at St. Cyr and Saumur furnish from their graduates *two-thirds* of the officers of the infantry and cavalry corps, the other *one-third* being selected from the most distinguished non-commissioned officers in the different regimental schools. These students are under the same military law as conscripts; and while I was in Paris forty of those at St. Cyr, convicted of combining against the authorities, were, by order of the minister of war, transferred *as privates* to the regiments, their only chance of promotion left being through the regimental schools after becoming non-commissioned officers. Foreign officers, by special favor, are permitted to enter any of these schools for their instruction. At Metz I saw several Egyptian and South American officers, who were going through the course of studies, and were assigned to companies as sub-officers at drill. They were clothed in the uniforms of their own services.

The *Musée d'Artillerie* at Paris with the *Atelier de Précision* and a large *chemical laboratory* is attached to the offices of the Permanent Committee of Artillery. A large and valuable collection of old and existing models of artillery, equipages, and small-arms, fancy and foreign arms, cannon, and equipages are in the museum. Inventions and novelties appearing in different countries are procured and deposited here for trial by the committee. Heavy iron cannon made at Ruelle, after the Sardinian pattern, loading at the breech, and an *infernal machine*, just arrived from Denmark, were among the new untried inventions. This last has wall-pieces and musket barrels fastened together in nests, much like the "*infantricide*" deposited at the Washington model office. The barrels, loaded with twenty charges each, to be fired successively by a match lighted at the muzzle, are attached to an elevating arc; a limber with ammunition box is attached. A cast-iron barbette carriage with its chassis, strongly ribbed, has been tried much, and thus far favorably, but it has not yet been adopted.

The shops where pattern arms and inspecting instruments, standard gauges, &c., are made and stamped—to be sent to the armories and arsenals—are small and inconvenient. The work is done chiefly by hand; a few hand-turned machines are used. They were preparing *eprouvette* balls and adjusting mortars. In turning the first a hand-lathe is used

to turn the ball—the cutting-tool moving by a screw on a semicircular horizontal rest. The work done is very neat and accurate.

The laboratory, under the charge of Captain Piot, has every convenience for experimenting—furnaces, chemical laboratory, instruments, and materials. A mineralogical cabinet has also been attached to it. Here experiments are made testing the chemical qualities of materials used in the artillery service, the purity of specimens of metal offered for use in casting, &c., bringing thus chemical science in aid of the practical intelligence of the artillery. Another valuable collection of antiquities of all kinds—among the rest, of artillery implements—exists at the *musée of the Hôtel de Cluny*. There is to be seen here an 8-barrel revolver (with flint-locks) of considerable antiquity—very like the improved revolvers in use with us.

The *Hôtel des Invalides*—a hospital for old and wounded soldiers—is an institution of great value in the French service, reconciling all classes of society to the hardships of army life, as all know that they will be here comfortably lodged and honorably cared for when aged or maimed, no matter what rank they may have attained. Military rules and discipline are just enough maintained to secure an economical and orderly management of the institution, and give the old soldier employment enough to make him think himself still useful. The appearance of the *invalides*, in their respectable-looking uniforms of the last century, is extremely interesting; and a stranger would say that, of all the public institutions in France, this is, perhaps, *the last* that would be abolished by a vote of the people, so universal is their pride in pointing out the building and in speaking of its inmates. A maimed soldier is never seen begging in France.

The polygon and arsenal at Vincennes.—Attached to the castle of Vincennes is a large arsenal for repairs of small-arms and artillery carriages, and the preparation of infantry and artillery ammunition. The recent disturbances in Paris have demanded such large supplies of ammunition, and the repair of so many arms, that every building about the castle not in use as quarters (including the chapel and a large small-arm storehouse) is devoted to this last; and within an advanced work of the fort, new laboratory buildings and storehouses (with barracks and stables for the regiment of artillery quartered there) are crowded by the workmen engaged in making cartridges. Twelve field-batteries complete, besides those now in use, are kept ready for any emergency. Hired workmen are employed about the arms; the ammunition is prepared by the men of the regiment, superintended by non-commissioned officers. The peculiarities of the small-arm cartridge can be best understood by observing the specimen accompanying. 8-inch howitzer canisters are made of sheet-iron, instead of tin.

The stables are very neat and clean, and great care is given to the horses. A stable guard of hostlers is always present. The division between the stalls is, in all French stables, a plank hung on a hinge at the trough, and suspended from the rafter at the other end by a chain fastened with a swivel, so as to be easily dropped if the horse gets his foot over it. The horses stand upon straw, and were all blanketed (in February).

The polygon for artillery practice—(the infantry school has been recently removed to St. Omer)—offers every facility for safe practice at the longest ranges. Generally, experiments are carried on here every year, during good weather; but, in the last two years, they have been much interrupted by the political disturbances in Paris. I was unfortunate enough to miss them.

Temporary barracks have been erected in many of the public squares of the city—to lodge the greatly increased garrison—since the revolution. These buildings are very neat, comfortable, and cheaply made—superior, I think, to our temporary structures, and probably less expensive. The frame of the building is made, as usual, with inclined braces between the uprights; the interval is then filled in with plaster made of clay, or common mortar, of the thickness of the uprights. They have tile roofs, are of one story, and heated by a stove. When whitewashed they present a very respectable appearance, and are but little exposed to the danger of fire.

The *veterinary school at Charenton* is very liberally supported by the government for the education of surgeons for the different corps which use horses. Handsome and convenient buildings, including quarters for directors and students, with all the necessary rooms for clinical and theoretic instruction, hospital stables for diseased horses, and pastures for those under treatment, exist here; a second establishment of the same kind is at Lyons. The efforts made of late years by the government to improve the breed and treatment of horses have already secured important benefits to the country—especially in obtaining a better remount for the artillery and cavalry at less cost than formerly.

A similar establishment at Berlin was visited, conducted on a very large scale, where the government permitted the sick horses of individuals to be lodged, upon the payment of $4\frac{1}{2}$ francs a week for forage and attendance. Connected with this last was an inclosure with strong pens attached for the confinement of mad dogs. The students were required to note daily the phases of the disease, and experiments were made to abate its violence and to find out an antidote to the poison generated. An extensive anatomical apartment, connected with the institution, contained skeletons of all breeds, ages, and conditions (as to health) of horses, cows, dogs, and domestic fowls; among the rest is shown the skeleton of the great Frederick's famous white charger, and beside him that of an Arabian presented by Mahemet Ali.

Manufactory of military equipments, Paris.—This is a private establishment, but the work is all done under the constant control and inspection of officers. A board composed of an officer of each army corps visits the shops weekly, or oftener, if they see fit, and inspects the leather in all stages of its manufacture, and other materials before and after completion. They were making uniform caps and ornaments, epaulettes and wings, belts and plates, buttons, cartridge-boxes and cap-pouches, leather gaiters, and leathers for the cavalry and artillery pantaloons. The clothing guide, which I have obtained, gives details upon all these and other articles of equipment. The attention devoted to the inspection of the cloth and afterwards to the fit and make of the clothing, secures to the army neat and excellent uniforms at far less rates than with us. A board composed of the colonel, lieutenant-colonel, major, and a captain in each regiment is required to inspect each article of outside dress upon the man. I have seen more than once all these officers with the company tailor examining the fit of the recruits' jackets and coats upon their arrival at the regimental headquarters.

UNIFORMS AND EQUIPMENT OF CORPS.

Several nations have adopted for foot troops a frock coat with skirts covering the hips, as the *full uniform* coat. This was introduced in France by advice of the medical officers, whose report subsequently proved that men so clothed suffered less from ordinary complaints than those in jackets or

body coats. The infantry of the line and chasseurs in France and Belgium, and all corps but the artillery in Sardinia, Tuscany, Prussia, and the German States, are now so clothed. Epaulettes or wings are worn on the coat by the men and epaulettes by officers. These last retain the full dress coat, but it is not used on drills or parades. The men's overcoat is double-breasted, and is usually worn on guard, drills, and marches; the epaulettes or wings being transferred to it. French officers have also a uniform overcoat, made loose and convenient, with distinctive marks denoting the rank on the sleeve. The knapsack, covered with skin with the hair on, is much more durable than ours. On campaign every soldier carries a bed-sack, which he can fill with hay, or prop up on stakes, for the night's sleep; it is folded up under the straps of the knapsack during the day. A valise, with circular ends, carried on top of the knapsack, receives the coat; the full dress cap is placed over one end of this, the knapsack strap keeping it in place; thus, marching in overcoat and forage cap, he has his whole equipment with him, and can, in a few moments, assume his full parade dress. Full directions for the cutting and making the different articles, with the rules prescribed for their inspection and issue, have been published; a copy of the work has been obtained.

Infantry.—Officers wear a light saber, of the pattern sent by me to the Ordnance Office. They speak of it as being very good and serviceable. The price in Paris is \$9. The men have no cross-belts; wearing the cartridge and cap-boxes, bayonet-scabbard (and in the flank companies the short sword), upon the waist-belt; belt black.

The *artillery* have a sword bayonet, worn on a white waist-belt. The cartridge-box on a cross-belt, wide and short, not reaching to the waist-belt. The ends of the box are of sheet-copper, with brass buttons, and loops to which the belt is hooked by swivels. Non-commissioned officers have a pistol and saber instead of the carbine; the same cartridge-box. Officers also wear a similar box.

Cavalry, same box; saber or lance. Dragoons have a musketoon; heavy cavalry and lancers, one pistol.

Chasseurs.—Carbine, with sword, bayonet, and cap and cartridge-boxes on black waist-belt. These troops are drilled much at gymnastic and athletic games. A copy of this drill has been procured. Strong short men are selected.

Sardinia.—All the infantry have the short-sword as well as the bayonet; no bayonet-scabbard. Boxes and sword-scabbard carried on waist-belt.

Belgium.—No cap-pouch is carried; each cartridge has a cap tied to it. No cross-belt for infantry. Artillery have only the short sword; no carbine. Non-commissioned officers mounted; saber and pistol.

Prussia.—The men having the new musket carry two cartridge-boxes worn in front, on the waist-belt. None carry the bayonet-scabbard or cap-pouch. All have the short-sword, carried on waist-belt. Troops with the old arm have but one box, with a pouch for caps sewed on the right end of the box. Artillery only a short-sword.

Hanover and Saxony.—All the infantry have the short-sword, and no bayonet-scabbard. In the regiments of the line, the cartridge-box has long loops attached, through which the waist-belt passes; cap-pouch sewed to right end of box. In the guards, the box and sword are carried on cross-belts of white leather, and the cap-pouch, of the same leather, sewed to cartridge-box belt, on the breast; no waist-belt.

Holland.—The infantry have the short-sword and cartridge-box, carried on white cross-belts, and a bayonet-scabbard sewed to right side of cartridge-box and its belt; no cap-pouch; each cap tied to its cartridge;

no waist-belt. Chasseurs have a rifle, and a powder-flask and pouch, on black cross belts; a cap-pouch, and mallet to force the ball, are carried on a black waist-belt. Cavalry have a musketoon, with a loop-trigger, so made to prevent objects catching in it. Horse artillery carry sabretash and a pistol; a few musketoons attached to limber ammunition box.

England.—Infantry have white cross-belts, carrying cartridge-box and bayonet-sabbard; no waist-belt; cap pocket in the right side of the jacket, lined with water-proof cloth and covered with a leather flap.

The above peculiarities, noticed in passing through the different countries, may not, in every case, be the *last* prescribed patterns; they were used, however, by some regiments, as stated, and, as far as observation and (generally) inquiry proved, are such as are now used in the crops named.

DR. BOUCHERIE'S PROCESS OF IMPREGNATING TIMBER.

At the national exhibition in Paris I had the pleasure of conversing with Dr. Boucherie and of seeing specimens of woods impregnated with a solution of sulphate of copper by his method. He confines the application of it to soft woods, generally, and exhibited, among other articles, a work-box and secretary made of a tree within three months after it was cut, which prove the wood to be well seasoned. The color given by the sulphate of copper is quite pretty and peculiar, being in redish and brown streaks and shades, unlike the effect of painting. After varnishing the appearance is rich, and, he says, will be permanent. He shows a block sawed into three sections, but not disconnected, which has been buried for six years in a fungus-pit. It is of pine; and immediately after being filled the two side sections were impregnated (by means of the natural action of the sap vessels of the wood), the one with the dento-chloride of mercury (corrosive sublimate, as recommended by Kyan), 800 grams of 1.5 per cent. strength; the other with 800 grams of sulphate of copper of 1.5 per cent. The center section was left in its natural state. The block now shows the portions which were left in the natural state, and that impregnated with the corrosive sublimate *equally* and *completely* rotten, the fiber destroyed, and the wood crumbling into dust, while the section marked as impregnated with the sulphate is perfectly sound and good.

The doctor says that he has placed traverses and sleepers upon several lines of railway, and posts upon one line of electric telegraph for the government, and that all are still sound, though some have been in use six years. He receives, constantly, orders for such work. For railroad traverses the price is from ten to twelve francs per meter cube, containing about ten traverses two and six-tenths meters long. The solution costs about eight sous the traverse, and handling about the same. The process is conducted in the woods, the logs laid side by side (the large ends cut square by the saw and arranged on the boundary lines of a square), inclining from butt to branches. A trough communicating with the reservoir is carried all around the square, above the butts, and small tubes run from this to each butt; and, in long trees, two holes about the centers of the trees, expediting thus the impregnation. The junction of the tube with the tree is carefully packed with a piece of cloth. The liquid advances through the tree at about the rate of one meter in twenty hours; the railroad traverses requiring forty-eight hours. The drip (after passing through the wood) is nearly colorless. A saw-cut around the tree to the depth of the sapwood, with a piece of cotton cord tied in

it, carries off the drip from any part above it. This is led back to the reservoir and pumped up in it to be used again with new material.

Respectfully submitted.

P. V. HAGNER,
Bvt. Maj., First Lieutenant of Ordnance.

[W. D., 15, 1850.]

ORDNANCE BOARD,
Washington, D. C., November 14, 1849.

The following resolution has been adopted by the board:

That the allowance of variation above the true diameter of the *bore*, for *all cannon* of 12-pounder, and smaller, be hereafter 0.02 inch (two hundredths of an inch).

And for *all cannon* above the caliber of 12-pounder, this variation be hereafter 0.03 inch (three hundredths of an inch).

For all shot and shells of the caliber of 12-pounder and smaller, the difference between the large and small gauge be 0.04 inch (four hundredths of an inch). For the caliber of 8 inch, and all other calibers between it and the 12-pounder, the difference between the large and smaller gauge be 0.05 inch (five hundredths of an inch). For calibers above the 8 inch, this difference to be 0.06 (six hundredths of an inch). The large gauges remaining of the dimensions at present prescribed, this will require the small gauges to be enlarged. This change is to apply only to inspection of new shot and shells, to be hereafter made.

Respectfully submitted and recommended to be adopted.

For the board.

BENJ. HUGER,
Bvt. Col., Captain of Ordnance, Recorder.

[Indorsement.]

Approved:

G. W. C.,
Secretary of War.

JANUARY 14, 1850.

[8 W. D., 1850.]

ORDNANCE BOARD,
Washington, November 15, 1849.

SIR: Your letter of the 12th instant, with inclosures, has been before this Board.

The communications from Captain Stone, giving detailed accounts of the performances of the French musket and carbine with a stem (*à la tige*), show such very great increase in range and accuracy of fire over the present musket and rifle, that the Board recommend that some of these arms be made and fully tested. As regards the Prussian musket the Board recommend that any trials that may be made with it be postponed until further information is received concerning it.

Respectfully submitted.

For the Board.

BENJ. HUGER,
Bvt. Col. and Captain of Ordnance, Recorder.

[Indorsement.]

Approved:

G. W. C.,
Secretary of War.

JANUARY 14, 1850.

[Miscellaneous Letters, No. 40, p. 493.]

ORDNANCE DEPARTMENT,
Washington, November 21, 1849.

SIR: On the inventories of ordnance and ordnance stores at Forts Trumbull, Griswold, Adams, Wolcott, Constitution, McClary, Preble, and Scammell, sent to this department by General Churchill, after his inspections in September last, was a recommendation that the ordnance property at these forts should be carefully examined by ordnance officers before any action was taken as to the disposition of the damaged and unserviceable stores. The Secretary of War directed that the proposed examination should be made, and that suitable ordnance officers should be detailed for the purpose. This was done, and the reports of these officers have been received at this department. I inclose herewith extracts from these reports indicating a want of proper attention to the articles constituting the armament of these forts, and have reason to think that the remarks would apply to most others. Although the censure is therein thrown solely on the ordnance sergeants, it seems to me that they are not altogether amenable to it at posts where they are under the orders of a commissioned officer. I respectfully suggest that the attention of commanding officers of forts should be called to the necessity of enforcing proper care in the preservation of the guns, carriages, and other articles of their armament.

I am sir, &c.,

GEO. TALCOTT,
Bvt. Brig. Gen., Colonel of Ordnance.

Major-General R. JONES,
Adjutant-General United States Army.

[473 W. D., 1849.]

FORT MONROE ARSENAL,
December 20, 1849.

SIR: I inclose herewith a letter from Brevet Major Laidley, which he requests may be forwarded to the honorable Secretary of War.

Very respectfully, your obedient servant,

BENJ. HUGER,
Brevet Colonel, Commanding.

Bvt. Brig. Gen. G. TALCOTT,
Chief of Ordnance.

[1st indorsement.]

ORDNANCE DEPARTMENT,
December 21, 1849.

Respectfully transmitted to the Secretary of War, as requested by Brevet Major Laidley.

GEO. TALCOTT,
Brevet Brigadier-General, Colonel of Ordnance.

[Inclosure.]

FORT MONROE ARSENAL, VA.,
December 20, 1849.

SIR: I have the honor respectfully to request your decision whether the Fort Monroe Arsenal, Virginia, which is at present commanded by

a captain of ordnance, and has never but temporarily been commanded by another grade, be or be not the command of a captain, or simply that of a lieutenant.

I ask this decision with a view of enabling me, in the case of the temporary absence of the commanding officer, to draw pay as brevet captain, and your decision is necessary, as I am informed by the Comptroller of the Treasury.

Very respectfully, I am, sir, your obedient servant,

T. T. S. LAIDLEY,
Brevet Major, United States Army.

Hon. G. W. CRAWFORD,
Secretary of War.

[2d indorsement.]

The pay of an officer having a brevet commission is regulated by law, and must be in accordance with his command. A staff officer can have no command, unless specially assigned by the President.

G. W. C.,
Secretary of War.

DECEMBER 27, 1849.

[62 H, 1850.]

CHARLESTON ARSENAL,
February 21, 1850.

SIR: Inclosed I send a copy of an order received from the headquarters of the Fourth Military Department, on the 15th instant, in obedience to which I attended, at Fort Moultrie, the court called on the 18th and 19th, having been prevented from returning to the arsenal after the adjournment of the court on the 18th by a storm which detained the boat. I conceive it my duty to make this report to you that you may see the practical effect of the circular from the War Department dated November 2, 1849,* and may judge whether the responsibilities incumbent upon officers of your corps render it advisable that they should be withdrawn from their stations without the knowledge of the chief of their corps, and to distances requiring (or risking) their absence longer than twenty-four hours. It is necessary also that you should know that upon my withdrawal from the arsenal there is no commis-

*WAR DEPARTMENT, ADJUTANT GENERAL'S OFFICE,
Washington, November 2, 1849.

CIRCULAR.

The Secretary of War decides that officers of the staff departments, after assignment by the War Department, are, like other officers, subject to military division or department orders, and are required to make out their reports and returns and otherwise conform to the rules and discipline of the service. Accordingly, the chief of the Quartermaster, Subsistence, Medical, Pay, Engineer, Topographical Engineer, and Ordnance Departments will report to the General-in-Chief the names and stations of the officers of their respective corps already assigned by the War Department, and for the future, such assignments as are from time to time directed. When it shall be desired to withdraw or change the stations of officers so assigned, application to that effect will be made to the headquarters of the Army.

By order :

E. D. TOWNSEND,
Assistant Adjutant-General.

[Note, *en passant*, that the above circular was revoked January 21, 1852. See page 916 $\frac{1}{2}$, *post.*]

sioned officer of the Army left in Charleston, except at such times as the paymaster may be present. A copy of the circular mentioned was sent to me by General Bankhead with the order for the court (no other copy has been received at the post), and I presume that it gives him full authority to order me to any place within his department.

* * * * * * *

I have the honor to be, very respectfully, your obedient servant,
P. V. HAGNER,
Brevet Major, First Lieutenant of Ordnance, Commanding.

[1st indorsement.]

ORDNANCE DEPARTMENT,
February 26, 1850.

Respectfully submitted to the Secretary of War, that the proper corrective may be applied; the construction given to the circular being erroneous.

GEO. TALCOTT,
Bvt. Brig. General, Colonel of Ordnance.

[2d indorsement.]

I am of opinion that the Articles of War make certain duties of a judicial nature alike to be performed by all commissioned officers. A denial of this right would be a subject of just complaint by any of the corps of the Army.

G. W. C.,
Secretary of War.

APRIL 26, 1850.

[139 W. D., 1850.]

ORDNANCE DEPARTMENT,
Washington, February 28, 1850.

SIR: The accompanying letter from Brevt. Capt. A. B. Dyer is respectfully submitted for your consideration, and such decision on the question therein presented as you may deem proper.

Captain Dyer is misinformed as to the ground of the Second Comptroller's decision disallowing payments to enlisted men of ordnance of the per diem of "fifteen cents and an extra gill of whisky or spirits," under the act of 2d March, 1819, and does not state it correctly. The Second Comptroller's decision is in these words, viz: "The act of August 23, 1842, chapter 183, section 2, prohibits all allowances for extra services, unless the same shall be authorized by law. The act of March 2, 1819, is the only law that authorizes the allowance of fifteen cents per day for extra labor of any kind in the Army, and inasmuch as that law is considered, by regulation, paragraph 243, as not applicable to men belonging to the Ordnance Department, any payment to men in that branch of the public service for extra labor, would be in violation of the act of 1842, first mentioned. Albion K. Parris, Comptroller."

This decision bears no date, but subsequently thereto, viz, under date of January 21, 1848, in a report to the Secretary of War on this subject, the Comptroller "respectfully suggests that, so long as the above paragraph 243 (that is, of the Army Regulations of 1841, identical with paragraph 661 of the last edition of 1847) remains as a regulation for the observance of the accounting officers, the allowance would be illegal.

The paragraph referred to is not, in my opinion, in accordance with the law on the subject. The act of 2d March, 1819, grants to non-commissioned officers, musicians, and privates of the Army, employed on fortifications, in surveys, in cutting roads, or other constant labor of not less than ten days, an allowance of fifteen cents and an extra gill of whisky or spirits, each, per day while so employed, and the act of February 8, 1815 (section 11), gives to all workmen, artificers, and laborers of ordnance the same clothing and other allowances as are allowed to privates of infantry. It is not contended that enlisted men of ordnance should receive this extra allowance when performing the appropriate work for which they are enlisted; but only when they are required to perform *extra* duty, such as that of clerks, or assistants in subsistence storehouses, authorized by the 1095th paragraph of the General Regulations for the Army, edition of 1841. I have no doubt that the paragraph 661, before referred to, was intended to exclude from the extra allowances ordnance soldiers when employed in their appropriate labor, and not when on extra duty; but, as it is worded, it has the effect of cutting them off altogether, and putting them, in this respect, on a different footing from all other soldiers of the Army.

I therefore respectfully suggest such an explanation or modification of this paragraph as may permit in future the extra allowances authorized by the act of March 2, 1819, to be granted to enlisted men of ordnance when performing the duties of clerks or of assistants in subsistence storehouses, or on other constant labor of not less than ten days, provided that labor does not come under the denomination of ordnance duty.

I am, sir, very respectfully, your obedient servant,

GEO. TALCOTT,

Bvt. Brig. General, Colonel of Ordnance.

P. S. This allowance was made to ordnance soldiers from 15th June, 1831, by a regulation of the War Department of that date, and continued to be granted without objection until the end of the first quarter of 1847, when it was stopped by the Second Comptroller's decision (above quoted) that it was annulled by the 243d paragraph of Army Regulations of 1841.

G. T.

[Inclosure.]

SAINT LOUIS ARSENAL,
February 12, 1850.

SIR: I have learned that in 1846 it was decided by the Second Comptroller of the Treasury that the 15th section of the act of Congress, approved August 21, 1842, excluded enlisted men of ordnance from the benefit of the act of March 2, 1819, which allows a per diem of 15 cents to the enlisted men of the *Army* when employed on constant labor (extra) for a period exceeding ten days. The only act I can find of the year 1842 which by any possible construction can exclude ordnance men from such extra compensation is the second section of the act approved August 23, 1842 (see page 274, Military Laws, 1846), and as that forbids the allowance of extra pay to *all persons* unless the same is *authorized by law, &c.*, it follows that if the ordnance men were entitled to the per diem when on extra duty previously to the passage of the act of August, 1842, that they are not excluded from it by that act, which only prohibited the allowance of extra pay in cases not *authorized by law*. The fact that such per diem was allowed both prior and subsequently to August, 1842, and as late as 1846, and that it was then prohibited upon the ground of its being in violation of the law of August, 1842, affords abundant evidence of the justness of the claim of the Ordnance Department to such allowance at this time.

That it was the intention of Congress to place the enlisted men of ordnance on the same footing as regarded pay and allowances with other enlisted men of the Army is, I think, clearly shown in the 11th section of the act approved February, 8, 1815,

which grants to all "workmen, artificers, and laborers the same clothing and other allowances as are allowed to privates of infantry in the Army of the United States, except clothing to the master-workmen." This intention is reiterated in the joint resolution approved August 14, 1848, which places ordnance men who served in the war with Mexico on the same footing, in all respects, as to bounty land and other remuneration in addition to ordinary pay, with non-commissioned officers, musicians, and privates, &c. Now, the per diem allowed to men on extra duty is certainly a remuneration in addition to ordinary pay, and the enlisted men of the ordnance who served in the war with Mexico are, whenever kept on extra duty for a period of more than ten days, entitled by law to the per diem which, under like circumstances, is allowed to non-commissioned officers and privates of the Army. My assistant in the commissary department at this arsenal is an enlisted man of ordnance, who served during the war with Mexico; he performs all the duties of assistant in the commissary and quartermaster's departments in addition to his other duties, being excused from no duty whatever in consequence of being detailed as my assistant, and yet he is not allowed the per diem of 15 cents, because he belongs to the Ordnance Department. An enlisted man of any other branch of the service, whether engineer, artillery, infantry, dragoon or rifle, when placed on such duty is allowed the per diem. Such a distinction between the Ordnance Department and the rest of the Army, even if clearly created by law, would be harsh, perhaps unjust; but when not made by law, and I conceive it is not in the present case, it is peculiarly unjust and detrimental to the interests of the ordnance men.

I most respectfully request that the subject may be brought before the Comptroller or other proper officer for his decision thereon.

I have the honor to be, sir, very respectfully, your obedient servant,

A. B. DYER,
Lieutenant of Ordnance.

Brig. Gen. GEORGE TALCOTT,
Ordnance.

[Indorsement.]

The regulation will not be changed.

G. W. C.

[Letters to W. D., Vol. 9, p. 469.]

ORDNANCE DEPARTMENT,
Washington, March 21, 1850.

SIR: The new edition of the "Ordnance Manual," for compiling and publishing which an appropriation of \$6,000 was made at the last session of Congress, having been completed, I have to submit for your decision the disposition to be made of the balance of the sum appropriated, remaining after paying the cost of publishing.

A knowledge of the facts connected with this appropriation and tending to show the objects for which it was made, seems to me to be necessary to a proper understanding of the question to be decided, and I will state them as concisely as possible.

On the 1st February, 1849, a letter was addressed to the Hon. W. L. Marcy, Secretary of War, from this office, stating that all the printed copies of the Ordnance Manual had been long since exhausted, and that another edition was indispensable to supply the demands for the service; that to effect this object a special appropriation was necessary, and that he was requested to lay before the military committees of Congress, with his sanction, an estimate, then submitted, in these words, viz: "To defray the expenses of publishing a new edition of the Ordnance Manual, of 1,000 copies, including compensation to be allowed to Captain Mordecai for the labor of compiling, arranging, and supervising the publication, \$6,000."

The act of March 3, 1849 (Army appropriation act), contains an appropriation of the estimated amount, doubtless based on this estimate,

as follows: "To defray the expense of compiling, arranging, publishing, and supervising the publication of a new edition of the Ordnance Manual, of fifteen hundred copies, six thousand dollars."

The new edition of 1,500 copies has been completed, and the expenses of "publishing" amount to \$1,728. After defraying this expense there remains a balance of the appropriation of \$4,272. This balance is applicable to defraying, in the words of the law, "the expense of compiling, arranging, and supervising the publication;" and taken in connection with the estimate is supposed by Brevet Major Mordecai to be justly and legally due to him as compensation for his labor in the preparation of the new edition, which consisted of the compilation, arrangement, and supervision of the publication thereof. With this statement of the case the question is respectfully submitted: Shall Major Mordecai's claim be allowed,* and the balance of the appropriation be applied to its payment?

I am, sir, &c.,

GEO. TALCOTT,

Brig. General, Colonel of Ordnance.

Hon. G. W. CRAWFORD,

Secretary of War.

[Miscellaneous Letters, vol. 41, p. 144.]

ORDNANCE DEPARTMENT,

Washington, April 4, 1850.

SIR: I submit for your decision whether, after the end of the present fiscal year, double rations will continue to be allowed to the commandants of arsenals and armories.

I do not see any just ground for doubt, since the law of March 3, 1849, has declared the meaning of the terms used in the double ration act of August 23, 1842.

The latter law allows the double rations to "the commandant of each permanent or fixed post garrisoned with troops." The act of March 3, 1849, declares arsenals and armories to be "separate and fixed or permanent posts of the Army of the United States." I suppose that a post of the Army of the United States is a post garrisoned by troops; that the words have as exactly the same meaning as different words in any language can have.

The garrisons of these arsenals, the portion of the Army of the United States which occupies them, are the officers and enlisted soldiers of the ordnance. These are also called, in some of the laws, enlisted men; in others, enlisted laborers; and in the act of July 10, 1848, "regular troops in the service of the United States."

The words of the law being clear, I do not suppose there will be any reason to go out of it; but if it were admissible, I would respectfully appeal to the history of the laws of 1842 and 1849. The ordnance officers always claimed under the law of 1842. Mr. Spencer decided against them, with hesitation as he said, and before the act of July 10, 1848, they appealed to Congress, and in the session of 1848-49 a separate bill was reported in their favor. The military committees of both houses were averse to continue the practice of any general legislation in the appropriation bills, but when it was found that the separate bill could

*NOTE.—This claim was allowed and duly paid at the Treasury United States to Major Mordecai.

not be reached from the state of the calendar in Congress, they determined to introduce the clause in the appropriation bill. The essential words of the act of 1842 are quoted in the act of 1849.

I hope you will agree with me in thinking there is as little ground for doubt in the strict interpretation of the law, as there can be no justice for denying an allowance to ordnance officers which is given to all other commanders of posts; or that there can be reason for supposing that Congress meant to give the allowance for one year and to withhold it after the expiration of the year.

I am, very respectfully, &c.,

GEO. TALCOTT,

Bvt. Brig. General, Colonel of Ordnance.

A. K. PARRIS, Esq.,

Second Comptroller of the Treasury.

[51—W. D.—1850.]

TREASURY DEPARTMENT,
SECOND COMPTROLLER'S OFFICE,

April 5, 1850.

SIR: I have examined the question propounded in your letter of yesterday's date, in regard to the allowance of additional rations to commissioned officers commanding arsenals and armories.

I am inclined to the opinion that the phraseology in the Army appropriation act of March 3, 1849, chapter 101, "including the additional rations for commissioned officers commanding arsenals or armories, being separate and fixed or permanent posts of the Army of the United States," should be considered as a legislative exposition of the sixth section of the act of August 23, 1842, chapter 186, and that, under that exposition, arsenals and armories should be henceforth considered as "permanent or fixed posts."

As the act of July 10, 1848, chapter 99, provides for the enlisted men of the Ordnance Department in the same manner as "privates of *other corps of the Army*," and "other regular troops in the service of the United States," I think it may be properly inferred that Congress, in authorizing additional rations to commissioned officers commanding arsenals and armories, not only considered such establishments as permanent or fixed posts, but as garrisoned with troops within the meaning of the act of 1842. Unless a different intention shall be indicated by Congress, the present allowances of additional rations to the commandants of arsenals and armories may be continued.

Respectfully, &c.,

ALBION K. PARRIS,

Comptroller.

Brigadier-General TALCOTT,

Ordnance Department.

[Letters to W. D., Vol. 9, p. 474.]

ORDNANCE DEPARTMENT,

Washington, April 19, 1850.

SIR: I have to acknowledge the reference to this office, for report, of the letter of the Hon. Senator Davis, chairman of the Committee on

Military Affairs, asking for such information and advice as you may conveniently furnish and be pleased to offer in relation to the "expediency of establishing a national foundry in the State of Alabama, and also the results of any researches connected with the establishment of foundries or armories elsewhere in the Mississippi Valley."

As to the expediency of establishing a national foundry, it is a matter which has been so often and so thoroughly examined, so fully discussed, and so generally recommended, that the subject may be considered as exhausted. Nothing in addition to what is contained in the various reports from committees of Congress, with the vast number of letters, memorials, and essays on the subject, accompanying them, can be stated. These reports are all to be found among the printed Congressional documents, and are numbered as follows, viz: Reports of Committees of the House of Representatives, No. 141, Twenty-third Congress, Second session; No. 168, Twenty-fifth Congress, Third session; No. 229, Twenty-seventh Congress, Third session; and No. 415, Twenty-eighth Congress, First session. I consider the expediency of establishing a national foundry as a settled question, conceded by almost every one who has examined the subject. Any argument I might offer in its favor would be but a repetition of what may be found in the public documents. To recapitulate concisely the more obvious objects of a national establishment of this kind: It would enable the government by its own officers to investigate the qualities of various kinds of ore and of iron for ordnance or other public purposes; it would furnish the means of experimenting on new kinds and patterns of cannon; of improving the manufacture of ordnance and of controlling the operations of the private foundries employed in making cannon for the government, both as to quality and price of work. The establishment of a national foundry is not intended to supersede the employment of private foundries, as a single establishment on the scale on which it has always been proposed to construct this national work, would not be sufficient to supply all the cannon and projectiles that will be wanted. But while all admit that there is no object more important to the military service of the country than the establishment of a national foundry, the proper place for its location has never been agreed upon with anything like unanimity. Indeed the conflict of local interest before Congress has heretofore defeated this most important measure. Whenever a site is under consideration an immense number of places claim the attention of the government—almost every State has presented its claims and many places in some States. It is for Congress and the President to fix the location; but wherever it may be, it is evident that it should unite as far as possible the advantages of an abundant supply of the materials, principally coal and iron, used at a foundry, with facility and cheapness of transportation of these materials to the foundry and of heavy cannon therefrom to the arsenals, fortifications, and navy yards; of water or steam power; of a safe position for a proving ground, and of healthfulness; whatever site may combine all these advantages or offer most of them will be a suitable one in whatever section of the country it may be found. If it be in Alabama, then there is, in my opinion, no doubt of "the expediency of establishing a national foundry in the State of Alabama." But as the selection of a proper site is an important matter, and, of course, preliminary to the establishment of the foundry, it seems to me that the first step to be taken should be to provide for an examination of various sites by a board of competent officers, say of the ordnance and topographical engineers, with whom should be associated a practical founder. With the report of such a board before them, Congress could legislate on the

subject understandingly, and as there are doubtless sites in different sections of the country offering more or less advantages, there should be a sufficiently wider field for selection, and an opportunity would be presented of examining and weighing the claims of each. Very full and extensive researches connected with the establishment of a national armory and foundry on the western waters, in the valley of the Mississippi, have been made at different periods. The results of these researches are stated in great detail in Executive Documents No. 120, House of Representatives, Twenty-fifth Congress, Second session, and No. 133, House of Representatives, Twenty-seventh Congress, Third session. These printed documents are referred to as giving very full and complete information on this subject. The letter of Senator Davis is returned herewith.

I am, sir, &c.,

GEO. TALCOTT,

Brevet Brigadier-General, Colonel of Ordnance.

HON. G. W. CRAWFORD,

Secretary of War.

[Miscellaneous Letters, vol. 41, p. 190.]

Indorsement on letter from General Brooke to Major-General Scott, dated April 10, 1850, referred by the Adjutant-General to Ordnance Department for remarks.

ORDNANCE DEPARTMENT,

May 7, 1850.

I have no doubt of the great efficiency of the "mountain howitzer" for such kind of service as General Brooke refers to. It unites the power of artillery with such lightness and facility of motion as to allow its use in countries without roads and by troops moving with any degree of celerity. Having had some difficulty in overcoming prejudices against this weapon on my first attempt to introduce it into service, I am glad to find that its practical utility realizes the advantages I anticipated from its use, and is now admitted. The carriages heretofore provided for these howitzers were designed for packing and not for traveling on wheels; they were exclusively for "mountain service." A different carriage, suitable for our western frontier country, has been designed and is now being made. It will meet the requirements of our officers who have a knowledge of that country, and will give us what no other service has (probably because not necessary in any other)—a new kind of artillery, which may be denominated "prairie artillery." The troops in Texas and New Mexico should be supplied with this artillery without delay. A supply of light balls of the caliber of the prairie howitzers and also of Hale's rockets have been ordered to be sent to General Brooke, and are probably on their way to him now.

Four howitzer carriages and limbers were sent to General Harney last year, and he has been requested to report on their utility. They have been used by the Second Dragoons and no doubt their advantages are well known to the officers at San Antonio.

GEO. TALCOTT,

Brevet Brigadier-General, Colonel of Ordnance.

ADJUTANT-GENERAL

United States Army.

ORDNANCE DEPARTMENT,
Washington, June 3, 1850.

SIR: I respectfully request that instructions may be given to supply ordnance officers, on their estimates, with such amounts from the appropriation "for the expenses of the recruiting service" as may be necessary to pay the ordnance men who *re-enlist* the three months' extra pay provided by the 29th section of the act approved July 5, 1838. Although these men are entitled to this extra pay, in accordance with the law and its interpretation as disclosed by the accompanying letters, Nos. 1, 2, and 3, they have not received it, because the funds necessary for its payment have not been supplied.

These funds are appropriated on estimates submitted by the Adjutant-General, and are supplied to recruiting-officers through his department. The annual amount required to pay re-enlisted ordnance men will not exceed \$350.

I am, sir, &c.,

GEO. TALCOTT,
Brevet Brigadier-General, Colonel of Ordnance.

Hon. G. W. CRAWFORD,
Secretary of War.

[194 W. D., 1850.]

ADJUTANT-GENERAL'S OFFICE,
Washington, September 6, 1850.

SIR: The colonel of ordnance having, in a communication to your predecessor of June 3, requested that officers of ordnance may be supplied with recruiting funds to pay bounties to re-enlisted men of the Ordnance Department, I beg leave respectfully to submit the following remarks respecting the inapplicability of the law to the enlisted men of that department:

The act of May 14, 1812, entitled "An act for the better regulation of the ordnance" gave a distinct organization to the department. [*Vide* Hetzel's Military Law, p. 148.] The 2d section of the act authorized the Commissary-General (colonel) "to employ from time to time as many wheelwrights, carriage-makers, blacksmiths, and laborers as the service may in his judgment require." The 4th section provided a monthly pay for each class of hired men at a much higher rate, it may be remarked, than allowed to soldiers of the line.

This act was superseded by the act of February 8, 1815 [Hetzel, p. 180], which provided a different organization for the ordnance. The 2d section authorized the colonel "to enlist for the service of the department, for five years, as many master *armorers*, master *carriage-makers*, master *blacksmiths*, *artificers*, *armorers*, *carriage-makers*, *blacksmiths*, and *laborers* as the public service in his judgment, &c., may require." Section 11 provides the monthly pay for each class of enlisted men, and at rates much higher than the pay provided for a soldier.

This act, so far as it relates to organization, was superseded by the act of March 2, 1821, fixing the Military Peace Establishment [Hetzel, p. 213], when the Ordnance Corps was incorporated with the artillery. The number of "enlisted men" was, by the 4th section of the act, reduced to 56.

April 5, 1832, by the act of that date (Hetzel, p. 227), the department again received a separate organization, the 1st section of which increased the number of "enlisted men" to 250. The 4th section made the "enlisted men" subject to the rules and articles of war. The grades or classification of the ordnance men continue the same as first enumerated, and there is no other law changing their designation. Their duties remain the same, they being enlisted as mechanics and laborers, with comparatively high rates of pay, ample to *secure at all times without difficulty the number of men required*, and, therefore, the allurements in the way of *bounties* in money have never been provided for this class of enlisted men. It is unnecessary to cite the several acts of Congress providing a bounty; suffice it to say that on all occasions when it becomes necessary to largely increase the Army, bounties are provided as *inducements* to enlist. The first law offering a bounty is the act of March 3, 1791. (Hetzel, p. 45.) Section 4 provides a bounty of \$6 to each non-commissioned officer, private, and musician."

Bounties for "re-enlisted" *soldiers* are distinct from those provided for *recruits*. The first act of this kind was passed May 30, 1796. [Hetzel, p. 63.] The 7th section gives a bounty of \$16 to each soldier who should "re-enlist for five years," being \$2 more than provided by the same section for a first entry into the service. The next law allowing a bounty for re-enlisting, is in the act of March 2, 1833. [Hetzel, p. 232.] The 3d section grants two months' extra pay to every "able bodied *musician* or *private soldier*," who shall re-enlist into his company or regiment. Non-commissioned officers were designedly excluded from the benefits of this act, because in the opinion of the Adjutant-General, founded on experience, who framed the bill, their higher rates of pay and the comforts of their station in the Army, required no extra or pecuniary inducements to "re-enlist." See the Adjutant-General's report of July 25, 1831, to the General-in-Chief, where the subject is fully discussed in connection with the subject of desertions. At a subsequent period (1838), Congress not only increased, but extended also the extra allowance by way of bounty, to the "*non-commissioned officers*," upon whose recommendation it is not known; but the increase, it is certain, was not necessary, as respects the sergeants of the Army. [See also the Adjutant-General's communication of March 29, 1838, to the Hon. J. J. McKay, chairman Committee Military Affairs, H. R.] The 29th section of the act of July 5, 1838 [Hetzel, p. 206], allows *three months'* extra pay to every able bodied "*non-commissioned officer, musician, and private soldier*," who may re-enlist into his company or regiment. This act now in force, is the one which the colonel of ordnance requests may be applied to the enlisted men of his department. It should be carefully observed that the objects of the several laws upon this subject are to offer *inducements* to the *old soldiers* to re-enter the service, with a view to economy and efficiency, who without such pecuniary benefit, would not re-enter now. The enlisted men of the Ordnance Department require no such inducement, their rates of pay and more comfortable locations being at all times quite sufficient to command the services of competent mechanics and laborers in any required number. This, the frequent discharges granted before expiration of service, on the recommendations of the officers of the corps, clearly show, for not unfrequently the application states that *better men can be readily obtained*.

Again the law is specific as to what classes of soldiers shall receive the bounty, viz, non-commissioned officers (including the several kinds of sergeants and corporals), musicians, and privates. These are known classes of soldiers designated with precision in the various acts of organi-

zation. Does the classification of the men in the Ordnance Department, answer to these? Certainly not, for they are carriage-makers, armorers, &c., and laborers.

An argument is made in favor of extending the law to all classes of men in the Ordnance Department, based on the fact that the ordnance sergeants when they re-enlist receive the bounty. But they being sergeants, *i. e.* non-commissioned officers, are appointed ordnance sergeants from the sergeants of the line of the Army, and they form no part of the Ordnance Department. They are not borne on its rolls. Suppose an ordnance sergeant were sentenced to be deprived of his warrant, he would, if he belonged to the ordnance as a part of its organization, fall to some inferior grade in that department. But, could he become a "laborer"? It is thought not, for in such case of reduction he would become a private soldier, and of course take his place in the ranks of some company of the line of the Army. This case, with the views above expressed, are respectfully submitted and a decision requested whether the 29th section of the act of July 5, 1838, applies to the enlisted men of the Ordnance Department.

I am sir, with great respect, your obedient servant,

R. JONES,
Adjutant-General.

HON. C. M. CONRAD,
Secretary of War.

[Indorsement.]

Upon the grounds stated by the Adjutant-General in his report of the 6th September, 1850, herewith filed, I decline to direct the payments requested for the enlisted men of ordnance.

C. M. CONRAD,
Secretary of War.

WAR DEPARTMENT,
October 31, 1850.

[Inclosure to 121½ W. D., 1850.]

WAR DEPARTMENT,
Washington, June 10, 1850.

SIR: I have had the honor to receive your communication of the 7th instant, expressing the opinion of the Committee on Military Affairs, that the amount due Captain Mordecai for "compiling, arranging, and supervising the publication of the Ordnance Manual," may be paid by this department from the appropriation for that object, without further legislation. Upon re-examination of the subject, I am unable to concur in the opinion of the committee. The second section of an act, approved August 23, 1842, and which controls all appropriations expended by this department, prohibits the allowance to officers of any additional pay, extra allowance, or compensation for any duty whatever, unless "the appropriation therefor *explicitly set forth* that it is for such additional pay, extra allowance, or compensation." The appropriation in this case is to defray the expenses of "compiling, arranging, publishing, and supervising the publication of a new edition of the Ordnance Manual." I do not find it "*explicitly set forth*" in this appropriation that any portion of the amount is to be paid as "additional pay, extra allowance, or compensation," to any "officer in any branch of the public service, or any other person whose salary, pay, or emoluments, is, or are, fixed by law or regulations." Indeed, whatever construction would authorize the department

to allow extra compensation from this appropriation, would apply to the next item in the same act, "to defray the expenses of topographical surveys of routes," &c., as well as to numerous others in various acts expressed in almost the same terms. The difference appears in the estimates only, while the law requires us to look to the appropriation for the object, and there to find it "explicitly set forth." Being, for these reasons, unable to entertain the claim of Captain Mordecai without further legislation on the subject, I again commend it to the favorable consideration of the committee, &c. The work was one which could have been executed only by an Army officer of service and experience in technical details; and I am satisfied, from representations made to me, that it has been performed by Captain Mordecai without, in any respect, neglecting his other duties.

Very respectfully, your obedient servant,

G. W. CRAWFORD,
Secretary of War.

Hon. JEFFERSON DAVIS,
Chairman of the Committee on Military Affairs,
U. S. Senate.

[121½ W. D., 1850.]

U. S. SENATE, June 7, 1850.

SIR: The Committee on Military Affairs have considered your letter of the 4th of April, and the accompanying* statement of the Chief of Ordnance in regard to the item in the Army appropriation act of March 3, 1849, which appropriated a sum of money (\$6,000) for a new edition of the Ordnance Manual. The committee instruct me to reply that their construction and understanding of the law is, that after all other expenses have been paid, the unexpended balance belongs to whomsoever shall, in the words of the law, have performed the labor of "compiling, arranging, and supervising the publication" of the said Manual. The name of Captain Mordecai, contained in the recommendation of the Secretary of War, was omitted from the recommendation of the Committee on Military Affairs because they deemed it improper, and might become impracticable to designate the particular officer by whom the duty of preparing and superintending the publication of the work should be performed. The committee hope that the unexpended balance will be paid to Major Mordecai,* under the existing law, and without the delay incident to further legislation.

Very respectfully, yours, &c.,

JEFFERSON DAVIS,
Chairman of the Committee on Military Affairs.

Hon. GEO. W. CRAWFORD,
Secretary of War.

[93 A, 1850.]

WAR DEPARTMENT, ADJUTANT-GENERAL'S OFFICE,
Washington, July 10, 1850.

SIR: Light Company A, Second Artillery, and Company F, First Artillery, are under orders to proceed to Washington from Forts McHenry and Washington. The Secretary of War directs that you cause such

* NOTE.—The unexpended balance was paid to Major Mordecai as here recommended.

temporary accommodations to be furnished for them at the arsenal as that post may be able to afford.

Respectfully,

R. JONES,
Adjutant-General.

Bvt. Brig. Gen. G. TALCOTT,
Colonel of Ordnance, Washington.

[173 W. D., 1850.]

ORDNANCE DEPARTMENT,
Washington, August 10, 1850.

SIR: The time has arrived for preparing the annual estimates at the several armories and arsenals, for additions, repairs, &c., required during the fiscal year commencing 1st July, 1851, and it is usual as well as useful for the Chief of Ordnance to visit some of the principal establishments, the better to confer with the several officers in relation to the object requiring such expenditures. I propose, therefore, with your sanction, to repair to Watertown and Watervliet Arsenals and Springfield Armory early next week for the purpose above stated.

I am, sir, respectfully, your obedient servant,

GEO. TALCOTT,
Bvt. Brig. General, Colonel of Ordnance.

Major-General SCOTT, •
Secretary of War.

[Indorsement.]

Approved.

W. S.

[205 W. D., 1850.]

ORDNANCE DEPARTMENT,
Washington, August 24, 1850.

SIR: On the claim presented to the War Department by Messrs. Bryan and Cochrane, in behalf of D. Butler, military storekeeper, and referred to this office, I have to report:

This claim is for double rations while in charge of Mount Vernon Arsenal, Alabama, from June, 1840, to December, 1841, and for an allowance of two additional rations per day while in charge of Fort Morgan, Alabama, during the same time.

The facts in the case are stated in the letter from this department to Mr. Butler, dated June 29th, 1850, which is among the papers accompanying the claim, and is respectfully referred to. Mr. Butler's claim is based on the provisions of the fourth section of the act of 3d March, 1797, giving double rations to "each officer while commanding a separate post;" of the 5th section of the act approved March 16th, 1802, giving to "the commanding officers of each separate post such additional number of rations as the President of the United States shall, from time to time, direct," and on the 26th section of the act, approved 5th July, 1838, fixing the compensation of ordnance storekeepers "not to exceed the pay and emoluments of a captain of ordnance." Until the passage of the act

of August 23, 1842, military storekeepers were not considered "commissioned officers" of the Army, to whom alone the additional rations, while commanding separate posts, were allowed by law. But after the passage of the act, they were nominated to the Senate and confirmed, and received commissions dating back prior to the act. Mr. Butler's commission, given to him in conformity with the act of 23d August, 1842, dated back to the first September, 1837, and he contends that by this action of the President and Senate, he was a "commissioned officer" during the time he was in charge of the posts of Mount Vernon Arsenal and Fort Morgan, and was therefore entitled to the additional rations he claims, under the acts of 1797 and 1802, before referred to. The question is, as I understand it, did the dating back of his commission have a retroactive effect on his emoluments; and, if so, does the 26th section of the act of July 5, 1838, giving him the compensation "not to exceed the pay and emoluments of a captain of ordnance," entitle him to all the pay and emoluments which a captain of ordnance would receive under the same circumstances? It seems to be a question as to the construction of law, not within my competency, and with the facts contained in the letter of the 29th June last, and this statement of the case, it is respectfully submitted to the decision of the Secretary of War. All the papers in the case are returned herewith.

Respectfully, your obedient servant,

WM. MAYNADIER,

Captain of Ordnance, in charge of Ordnance Department.

Hon. C. M. CONRAD,

Secretary of War.

[Indorsement.]

This claim has no foundation whatever to rest on. In the first place, the claimant was not a commissioned officer at the time the services were rendered for which he claims compensation. The fact that his commission (issued in 1842) dated back to 1838, does not entitle him to the advantages which he would have derived from it had he held that commission during the interval between those two dates. The effect of antedating a commission in this way is merely to entitle an officer to all the advantages which, subsequently to the *real date* of his commission, would result from the priority of date. The reasoning which has given a different effect to commissions of *promotion*, by brevet or in the line, does not apply to original commissions like the one in question. In the second place, to entitle an officer to the extra rations claimed, he must *command* a separate post. Now, the storekeeper may have been and no doubt was *in charge* of the post, but cannot properly be said to have *commanded* it, within the meaning of the act. He could have exercised no military command whatever.

C. M. CONRAD,

Secretary of War.

WAR DEPARTMENT, *October 29, 1850.*

[Inclosure.]

ORDNANCE DEPARTMENT,
Washington, June 29, 1850.

SIR: In reply to your letter of the 26th instant requesting a statement of certain facts in regard to the *commissioning* of military storekeepers, and to your duties at Mount Vernon Arsenal in 1840 and 1841, I have to state, the military storekeepers retained in service in compliance with the 2d section of the act approved August 23,

1842, were nominated to the Senate and confirmed; and such of them as had been previously in service received commissions dated from their original appointments. You were one of the retained storekeepers and your commission was dated back to 1st September, 1837, the time of your original appointment. In 1840 you were ordered to Mount Vernon Arsenal, Alabama; and on the 18th of June of that year you relieved Capt. W. A. Thornton from the command of the arsenal, and remained the only officer of the Ordnance Department thereat until the 5th December, 1841, when you were relieved by Lieut. J. M. Morgan. When you relieved Captain Thornton you succeeded to all his duties and responsibilities for public property, and continued in the same until relieved by Lieutenant Morgan.

The foregoing facts are derived from the official records of the Adjutant-General's and of this office.

Respectfully, your obedient servant,

GEO. TALCOTT,
Bvt. Brig. Genl., Colonel of Ordnance.

D. BUTLER, ESQ.,
Washington, D. C.

DAVID BUTLER submits the following remarks on his case:

This claim rests on the 26th section of the act of Congress of July 5, 1838, which is in the terms following:

"And be it further enacted, that the compensation hereafter to be allowed to such ordnance storekeepers as shall be designated as paymasters shall not exceed the pay and emoluments of a captain of ordnance."

The dispute is on the interpretation of the law. Of the facts in the case there is no dispute. These facts are, to wit, David Butler was paymaster at Mount Vernon Arsenal, and commanded said arsenal from 1st June, 1840, to 31st December, 1841, for which time he was to receive the "pay and emoluments of a captain of ordnance." He did receive and was allowed by the settlement of his accounts at the Treasury, all the pay and emoluments of a captain of ordnance except the double rations for the command of the post. This emolument has been refused and withheld upon the following opinion of Mr. Wilkins, Secretary of War:

"In my opinion the proper construction of the law is that the compensation of military storekeepers and paymasters of ordnance is only the regular and fixed pay and allowances to which a captain of ordnance is entitled under the ordinary circumstances, and does not include the contingent allowances which, under special circumstances, may be made to an officer of that grade."

To explain this decision it is necessary to state that under the law of March 16, 1802, section 5, double rations were allowed by the War Department to the commanding officers of certain "separate posts," and Mount Vernon Arsenal had been designated as one of these. The captain of ordnance who preceded Military Storekeeper Butler in the command of that arsenal did receive accordingly double rations, as also all other captains of ordnance commanding arsenals. Double rations being an emolument contingent upon the command of a separate post, and only received by captains of ordnance when in the command of an arsenal, Mr. Wilkins considered it not to be within the meaning of the act of July, 1838, and the true interpretation of the words "pay and emoluments of a captain of ordnance."

To this opinion of Mr. Wilkins it is answered that the terms of the law are general, and not limited and qualified by such other words as he finds it necessary to introduce therein, in order to express the construction he puts upon the law. The law says simply "pay and emoluments." There is no discrimination between "fixed and general allowances" and "contingent allowances," or between "special circumstances" and "ordinary circumstances." The law takes no such distinctions. It employs the general language "pay and emoluments," the language customary in such acts; meant to comprehend *all* the emoluments, and no exception is expressed or implied—none whatever.

What can be clearer than the meaning of a law which says one officer shall receive the pay and emoluments of another officer? Certainly they are put on the same footing exactly, in respect of compensation. What the one is allowed for his services the other is entitled to. It is difficult to make an argument on such a proposition. It is impossible to make it clearer by argument. The naked statement of the proposition is the argument of it. To find the pay of the storekeeper it is necessary to find exactly the pay of the captain of ordnance. If the compensation of the captain of ordnance is a sum stated, that sum is the pay of the storekeeper. If the compensation of the captain of ordnance varies with his duties and situation, so should the pay of the storekeeper. Otherwise, how are they the same? Suppose, as in the Navy, the captain of ordnance has one pay on furlough, another pay on leave of absence, a third pay on duty, a fourth in command, which of these would be the storekeeper's pay? Which, in Mr. Wilkins' language, is the "fixed and regular," and which the "contingent"? Which is the "ordinary" and which the "special"? The point is perfectly clear; to

get the pay of a captain of ordnance he must get the same pay on the same duty; on furlough, the furlough pay; in command, the pay of a captain in command.

By the Navy law (act to regulate the pay of the Navy, approved March 3, 1835), an officer temporarily discharging the duty of a higher grade is entitled to the pay of that grade. The pay of a lieutenant on duty was "fixed and regular" at \$1,500 per annum. A lieutenant commanding had a contingent additional pay while in command amounting to \$1,800 per annum. When a passed midshipman "by special circumstances" does the duty of lieutenant, no such rule as Mr. Wilkins sets up has ever been applied to deprive him of the pay of a lieutenant, in the special circumstances. If he acts as lieutenant commanding he gets the pay of lieutenant commanding. The construction of this law in the Navy is settled by practice since 1835.

But to examine a little further this distinction of "fixed and regular allowances" and "contingent allowances," if Mr. Wilkins had carried out his rule he would have deprived storekeepers of all the allowances they have ever received, except rations; because they are all "contingent," and none of them are "fixed and regular." The allowance of servants and horses, amounting, for a captain of ordnance and storekeeper at the time of this claim to \$414 per annum. This allowance is "contingent," depending on "special circumstances" to entitle the officer to receive it; he certifies that he has kept in service during the whole time charged for the servants and the horses; otherwise he cannot receive the emolument. The officer is absolutely entitled only to his pay and rations. His allowances of servants and horses, and fuel and quarters, are "contingent." This idea of a difference between "regular" and "contingent" allowance was at one time carried beyond the mark of this decision. It was considered to deny military storekeepers medical attendance, that being contingent on sickness and hardly an emolument; though by par. 1225, Army Regulations, medical attendance was due to "all officers, non-commissioned officers, &c., of the Army"; and par. 5 of the same regulations in defining who constituted these "officers, non-commissioned officers," &c., enumerated military storekeepers among the rest. Could a clearer and more indisputable case be presented? Yet Mr. Wilkins decided they were not entitled to medical attendance in the face and teeth of the language of the regulations and the previous practice in the service. This claim is recommended by the Ordnance Office; its equity is not denied. The only difficulty in the way of its allowance is the erroneous construction of the terms of the law. Congress can find no difficulty in doing justice in the premises, and declaring the true meaning and equitable construction of the law.

[Letters to Ordnance Officers, vol. 11, p. 479.]

ORDNANCE DEPARTMENT,
Washington, October 5, 1850.

CIRCULAR.

The circular from this department dated July 3, 1849, in respect to depositing of moneys received from sales of public property, &c., and the circular of October 10, 1849, modifying the same, are hereby rescinded.

Moneys hereafter received from these sources will be credited on the accounts of the officers receiving the same to the appropriation to which they belong.

GEO. TALCOTT,
Brevet Brigadier-General, Colonel of Ordnance.

Copy to commanding officers of all arsenals and ordnance establishments.

[Ex. Doc., Second session, Thirty-first Congress, vol. I, p. 463.]

ORDNANCE DEPARTMENT,
Washington, November 4, 1850.

SIR: The principal operations of this department during the past fiscal year, arranged in order under their respective heads for greater

convenience and facility of reference, are respectfully reported as follows:

FUND8.

Amount, as per last year's report, undrawn from the Treasury on the 1st of July, 1849.....	\$509, 899 41
In hands of disbursing officers same date.....	196, 713 42
Amount of appropriations for the fiscal year 1850, including the fixed annual appropriation for arming and equipping the militia.....	1, 195, 231 00
Received during the year for damages to arms in the hands of troops, chargeable to them, and from all other sources not before mentioned.....	124, 848 09
	<hr/> 2, 026, 691 92
Amount of expenditures during the year.....	\$1, 188, 338 83
In hands of disbursing officers 30th June, 1850.....	99, 114 58
Remaining in the Treasury undrawn 30th June, 1850.....	739, 238 51
	<hr/> 2, 026, 691 92

The amount expended during the year from each appropriation will be found stated under the appropriate heads as they occur in this report. The accounts of all the disbursing officers have been regularly rendered, examined in this office, and transmitted to the proper accounting officers for settlement, with a single exception in the case of an acting officer, temporarily employed and not now in service. His liabilities amount to but little, and proper legal measures have been taken to enforce a settlement. The estimates for the next fiscal year include only what is deemed necessary to carry on the regular operations of the department with the least expense consistent with a proper provision of the military supplies it is required to furnish. They are explained in detail in the remarks on each item annexed thereto.

ARMAMENT OF FORTIFICATIONS.

The Ordnance Department, in prosecuting this branch of the military service intrusted to it, has, during the past fiscal year, procured from the foundries some heavy seacoast cannon; purchased and placed in store a quantity of timber suitable for the construction of gun-carriages for seacoast and garrison service; fabricated at the arsenals a number of those carriages, with their implements and equipments, and attended to the preparatory arrangements at the foundries requisite for the casting of such cannon as were most wanted, and as the available means appropriated for this object authorized it to order. It has also kept in order the armament of the several forts in the country, doing extensive repairs at some of them; has furnished the regular supplies of ammunition, and has sent to the forts on our coasts twenty-five heavy cannon in addition to those before supplied, of which the greater portion were for posts on the Pacific Ocean. The principal articles procured by purchase and fabrication at the arsenals, are: 19 24-pounder iron howitzers for flank defense; 69 32-pounder barbette carriages, complete; 98 24-pounder barbette carriages, complete; 2 8-inch seacoast howitzer carriages, complete; 43 8-inch columbiad carriages, complete; 2 32-pounder barbette top carriages; 4 24-pounder barbette chasses; 2 8-inch seacoast howitzer chasses; 32 32-pounder casemate chasses; 57 8-inch columbiad casemate chasses; 3 8-inch seacoast howitzer top carriages; 90 24-pounder flank howitzer top carriages; 27,054 cubic feet of timber for seacoast carriages.

In addition to these, one hundred and twenty 32-pounder seacoast cannon have been ordered, and preparations made for their manufacture; but they were not delivered during the fiscal year. The payments for

them, which will be due on presentation of certificates of inspection, proof, and delivery, will absorb the remaining balance of the appropriation for the year. The expenditures from the appropriation for armament of fortifications during the year amount to \$77,531.23.

ORDNANCE, ORDNANCE STORES, AND SUPPLIES.

The work done under this head during the past year has consisted of the preparation and furnishing of ordnance supplies for troops in the United States service, and the alteration of flint-lock muskets to percussion. These supplies include siege, field, and mountain artillery, with their carriages, ammunition wagons, implements, equipments, and harness, accouterments and side-arms, rifles, and cavalry pistols. The principal articles procured by purchase and fabrication at the arsenals are the following, viz: 1 9-pounder trial gun; 6 6-pounder field carriages; 2 12-pounder howitzer prairie carriages; 8 portable forges for mountain howitzers, with tools; 2 casemate trucks; 22 caissons; 1,000 Colt's pistols; 100 cadet's swords; 385 percussion locks for cannon, altered; 10 India-rubber tarpaulins; 2,194 bayonet-scabbards, with frogs; 3,800 gun-slings; 100 musketoon waist-belts; 205 saber-belts; 1,225 sword-knots; 1,115 pistol cartridge-boxes; 10,008 percussion cap-pouches; 240 rifle-pouches, flasks, and belts; 815 spherical case-shot, different calibers; 2,460 canister-shot, different calibers; 1,003 12-pounder shells; 451,138 pounds of lead; 74,700 friction-tubes for cannon; 4,318 rounds of field-artillery ammunition; 194,493 cartridges for small-arms; 136,000 percussion caps, small size, for Colt's pistols; 3,497,000 percussion caps for United States arms; 11,173 cubic feet of field-carriage timber.

The alteration from flint-lock to percussion of the good serviceable flint-lock muskets on hand has constituted during the year a portion of the work at the national armories and the larger arsenals. The number of muskets which have been thus altered and furnished with appropriate appendages and spare parts for percussion arms is one hundred and seventy-three thousand eight hundred and ninety-eight. The expenditures from this appropriation during the year amount to \$237,773.86.

One thousand of Colt's revolving pistols have been purchased from the special appropriation for that object, and orders given, by direction of the Secretary of War, for as many more as the balance of the appropriation will pay for.

Statement C (hereto annexed) exhibits the quantities and kinds of arms, ammunition, and other ordnance stores issued to the United States troops during the year ending 30th June, 1850.

The arms and ammunition issued during the same time to emigrants to California, Oregon, and New Mexico, by authority of the resolution of Congress approved 2d March, 1849, amount in value to \$2,854.71.

NATIONAL ARMORIES.

The expenditures at the national armories during the year have been as follows, viz:

	Harper's Ferry.	Springfield.	Total.
For the manufacture of arms, appendages, tools, &c., and purchase of materials for the same	\$137, 185 37	\$145, 101 63	\$302, 287 00
For repairs, improvements, and new machinery, including lands, buildings, dams, &c.	38, 173 24	37, 129 47	75, 302 71
Total	195, 358 61	182, 231 10	377, 589 71

The operations at these armories during the year are stated in detail in the reports of their commanding officers, hereto annexed, which are referred to for more particular information on the subject. The manufactures at Harper's Ferry Armory include 9,600 percussion muskets and 2,676 percussion rifles, with 26,308 appendages for the same, consisting of extra cones, screw-drivers, spring-vises, wipers, ball-screws, and bullet-molds; 10,836 flint-lock muskets have been altered to percussion, and 107,888 hammers, cones, and screw-drivers for muskets to be thus altered have been made. At Springfield Armory there have been manufactured 18,155 percussion muskets, and 2,000 cavalry musketoons with 24,418 appendages for the same, consisting of like parts with those before mentioned; 56,134 flint-lock muskets have been altered to percussion, and 143,575 hammers and cones for muskets to be thus altered have been made. The cost of the finished musket at Springfield Armory during the past year was \$9.05; at Harper's Ferry Armory \$11.16. The less cost and better quality of the manufactures at the national armories, and their improved condition in every respect since the introduction of the present system of superintendence, fully establish its superiority over that which it superseded.

ARMING AND EQUIPPING THE MILITIA.

The regular requisitions during the past year for arms and equipments for the several States and Territories, under the law of 1808 for arming and equipping the whole body of the militia, have all been complied with. That law requires the arms to be "transmitted to the several States composing this Union, and Territories thereof, to each State and Territory, respectively, in proportion to the number of effective militia in each." The returns from the several States and Territories to the Adjutant-General of the Army furnish the only data for determining the number of effective militia, and the quota of each State and Territory is annually apportioned at this office according to these returns. I repeat the suggestion made in my last annual report of a change in the law by which the apportionment shall be made according to population or to representation in Congress, for the reasons then stated, and equally applicable now.

The expenditures during the past fiscal year, from the appropriation for arming and equipping the militia, amount to \$191,209.13.

The principal articles obtained on this account, by purchase and fabrication at the arsenals, are as follows, viz: 30 six-pounder bronze cannon; 7,840 percussion rifles; 1,200 percussion carbines; 6,650 percussion pistols; 2,570 cavalry sabers; 1,000 sets of cavalry accouterments; 2,000 rifle-pouches; 2,000 copper powder-flasks; 2,000 flask and pouch belts.

The apportionment of arms and the supplies furnished to the militia during the year are shown by the annexed statements, marked A and B.

ARSENALS AND DEPOTS.

There has been no change during the year in the permanent arsenals and ordnance depots. Temporary depots for the deposit and repairs of arms and other ordnance stores have been established at San Antonio, in Texas, and Santa Fé, in New Mexico, and furnished with adequate supplies. A permanent arsenal in the State of Texas, and one also in the Territory of New Mexico, are required. The proper sites for these arsenals are at or near Austin and Santa Fé. I purpose to submit here-

after special estimates for the construction of these arsenals. Under the direction of the major-general commanding the Pacific Division, a site has been selected for an arsenal in the Territory of Oregon, which seems well adapted for the purpose in every respect. But, although it is desirable to have an arsenal in that Territory, and also in California, it is not deemed advisable to present at this time estimates for appropriations therefor. The great difficulty of procuring in that part of the country the necessary labor and materials for constructing such buildings as are necessary for permanent arsenals, and the enormous expense which would attend their erection, and any manufacturing operations thereat, render it not advisable to undertake them while such a state of things continues. It appears to be preferable to rely for supplies of this description required in that part of the country on shipments from the arsenals on the Atlantic side, and such temporary means of storage for those not in use as may be had in that country.

All arms and other ordnance supplies for the land service belonging to the United States which are not in use by the troops are distributed for safe-keeping among the arsenals in different parts of the country, in such manner as it is thought will best secure their safety, and at the same time be most convenient to meet demands for them, so far as they can be foreseen. The officers in whose charge they are placed are held responsible for and make returns of them quarterly to this office. Besides these quarterly returns, annual inventories are also furnished, including, in addition to the ordnance and ordnance stores at each arsenal and depot, the public lands, buildings, and other property. These inventories exhibit each article that has been received at any of the arsenals during the year, and how obtained, each article that has been taken therefrom, and how disposed of, and the quantity and condition of each article remaining on hand, and its money value. The inventories for the year ending June 30, 1850, show the following aggregates of value in money of the public property at all the arsenals:

Lands, magazines, storehouses, quarters, barracks, workshops, and machinery	\$4, 514, 036 45
Artillery of every description, with carriages, implements, and projectiles	2, 664, 347 14
Small-arms of every description, with their appendages and accouterments	8, 381, 171 99
Ammunition of all kinds, including powder and materials for its manufacture	1, 122, 534 69
Component parts of artillery carriages and equipments, and of small-arms and accouterments	383, 120 45
Gins, carts, implements, and tools of every description in use or current service	386, 435 94
Unwrought materials and tools in store	609, 223 70
	<hr/> 18, 060, 870 36

The average number of enlisted men during the year has been 493. They are stationed at the different arsenals in detachments of such numbers as the service of each of these posts requires. They are uniformed, armed, equipped, and instructed in military duties and exercises, and perform guard and police duties, like the regular garrisons of other posts. When not on duty as soldiers they are employed in the shops at such work as their mechanical skill fits them to do. Those who are not mechanics are mustered in the grade of laborers, and are employed in attending to the care and preservation of the public property and grounds, receiving and issuing supplies, and such other public labor as is necessary at the posts. Besides the enlisted men, hired mechanics are employed at most of the arsenals for constructions and fabrications requir-

ing greater mechanical skill than is possessed by most enlisted men. The number of hired men varies according to the work to be done, and their wages are regulated by the rates paid for similar services and skill in the vicinity of the arsenals where they are employed.

The expenditures from the appropriation for "arsenals" during the past year amount to \$110,656.50. The work done under this head includes repairs and preservation of public buildings, fences, wharves, &c., the erection of new and additions to old buildings, and all improvements of a permanent character. For a more detailed account of the operations at the arsenal, reference is made to the reports from the commanding officers of the principal of these establishments hereto appended.

I am, sir, very respectfully, your obedient servant,

G. TALCOTT,
Brevet Brigadier-General, Colonel of Ordnance.

Hon. C. M. CONRAD,
Secretary of War.

[231 W. D., 1850.]

WAR DEPARTMENT,
November 29, 1850.

The Secretary of War requests from the heads of bureaus on Monday in every week reports of the disposition made of all letters and other communications referred to them by him during the preceding week. The reports need not be made in more detail than will suffice to show whether such papers have been acted on, and, if so, in what manner.

Reports for the current week are requested to be made on Monday next.

[Letters to W. D., vol. 10, p. 51.]

ORDNANCE DEPARTMENT,
Washington, December 3, 1850.

SIR: In accordance with your letter of the 2d October last, directing my attention to the Senate's resolution of the 30th September, 1850, with instructions to make such experiments as might be deemed necessary to comply with the spirit and intent of the resolution, I ordered a board of ordnance officers to meet at Washington Arsenal on the 13th November, to make trial of such repeating and other arms as might be presented for that purpose. The instructions to the board, presented on the day of their assembly, are contained in the record of their proceedings, and are respectfully referred to. I also addressed letters to all the inventors of repeating pistols, or other arms that I knew of, informing them of the assembling of the board and its object, and inviting them to attend with samples of their arms. In order to obtain such information on the subject of the resolution as resulted from the practical experience of active service, I addressed letters to the officers of those troops which have been armed with Colt's revolvers (the only *repeating* pistols that have been used by our regular troops), designating all the material points of inquiry that occurred to me in relation to their efficiency, durability, liability to accidents from premature discharge, bursting or other causes, the getting out of order, facility of being repaired, convenience of carrying both arms and ammunition, how they generally compare with the common horseman's pistol, in withstanding the rough usage and careless

handling incident to the vicissitudes of a campaign, with such other information as to them might seem pertinent to the subject. These are the measures I have adopted to carry into effect your instructions. The record of the board's proceedings and papers therein referred to, together with their report and opinion, are submitted herewith. Also, the replies of some of the officers addressed on the subject, including nearly all whose stations were near enough to admit of the receipt of a reply by this time. Others will be submitted when they reach me. These papers contain the results of the examination and inquiries which your letter, first referred to requires. It also calls for my opinion, in giving which I desire to be permitted to state certain facts which have influenced and modified it from time to time. The first issues of Colt's pistols proved to be almost complete failures for practical utility, as had been the case with other repeating breech-loading arms, and created a prejudice against them. In support of this, I need only to refer to the issue of these pistols to the Texas Rangers, under the celebrated Col. Jack Hays. There were received 280 pistols, and after less than a year's service there were left to be returned to the arsenals but 191 in all, of which only 82 were serviceable, the remainder chiefly bursted in the hands of the men, a few being lost in skirmishes with the enemy. These arms were issued in August, 1847, and the Rangers turned in what were left when mustered out of service in the spring of 1848. The pistols last made have been modified in some respects from the original pattern, and much improved in the manufacture, particularly in the material used. Their use by the troops has produced no complaints except as to the flasks which were furnished with them. These are found so defective that in the Eighth Military Department (Texas) resort has been had to the use of cartridges instead of the separate powder and ball. I am of the opinion that cartridges will be found preferable in all cases, and the objection on account of defective flasks thus remedied.

The trials of the board show extraordinary durability of the pistols then used, and prove that they *can* be made strong and lasting. The practical experience of such officers as have seen them used by troops in active service is in favor of them, some entirely, others only to their being furnished to a *limited* extent and to selected men.

Under all the light that has been shed upon the subject from experimental trials, practical experience in service, and examination of these arms, as well as by inquiries concerning them, I am of the opinion that they may be used to advantage in the hands of skillful or careful men; that it would be premature to exclude *entirely* the dragoon pistol; that the pistol, being a weapon calculated and suited for personal defense alone, has its efficiency in this respect increased when made to repeat; that the repeating pistols cannot be advantageously used by the mass of our private soldiers for the want of necessary discretion, coolness, and skill; and that they should be furnished to them in limited numbers, only to be placed in the hands of such men as their officers may select to be so armed. If thus introduced regularly into the United States service they may be furnished also to the States when required by their governors, under the law for arming the militia; but this should be done to the same limited extent as is proposed for the Army. The great cost of these pistols, being to that of the dragoon pistol nearly in the proportion of four to one, presents another reason for limiting their supply. Although their advantages in the hands of picked men might compensate the additional cost, it would be inadvisable to incur such an increase of expenditure for the United States military establishment as would be required to arm *all the mounted men*; and in cases of issue for the mili-

tia it would take but few of these pistols at the price heretofore paid, \$25 each, to absorb the whole annual quota due most of the States. Of the different repeating pistols presented for examination and trial the board give the preference to Colt's. It is to be expected that his should now excel the others, most of which are made on the same general principle, as he has had the benefit of more experience to remedy defects, either of model or manufacture, and I concur in this respect with the opinion of the board. I also agree with them in preferring a lighter pistol than has heretofore been made.

I am, sir, respectfully, your very obedient servant,

GEO. TALCOTT,

Bvt. Brig. General, Colonel of Ordnance.

Hon. C. M. CONRAD,
Secretary of War.

[Letters to W. D., vol. 10, p. 57.]

ORDNANCE DEPARTMENT,

Washington, December 17, 1850.

SIR: When the board of Ordnance Officers was convened to examine and try repeating pistols under the resolution of the Senate of the 30th of September last, there were various arms, other than those specially mentioned in the resolution, which had been presented to the notice of the War Department by their inventors, who claimed for them many advantages over those in use. The meeting of the board presented a good opportunity to make trial of such arms; they were accordingly directed to do so and to report the results of their examination and experiments. I respectfully inclose a copy of that report, from which it will be seen that but one of the arms tried, viz, Sharp's, with Maynard's lock and primer, is considered suitable for the public service. My opinion of Sharp's gun, formed from an examination of its construction, is favorable to its superiority over all other breech-loading arms which have come to my notice, especially when combined with Maynard's improvement for priming, and I think it may prove a valuable arm for the military service. But the only sure way to establish or refute this opinion is practical trial of the arms in the hands of troops in active service in the field. I therefore recommend that the purchase of a small number of these arms, say two hundred, be authorized, and that they be issued to the troops on the Western frontier. After they shall have been in use by them for a sufficient length of time to test their practical utility, an arrangement may be made for introducing them regularly into the military service to such an extent as experience may render advisable. The cost of purchasing 200 of these arms will not exceed \$4,000, which may be paid from the appropriation for "the purchase of ordnance, ordnance stores, and supplies."

Respectfully, your obedient servant,

GEO. TALCOTT,

Bvt. Brig. General, Colonel of Ordnance.

Hon. C. M. CONRAD,
Secretary of War.

[Indorsement.]

Approved:

C. M. CONRAD,
Secretary of War.

[Letters to W. D., vol. 10, p. 62.]

ORDNANCE DEPARTMENT,
Washington, December 30, 1850.

SIR: I have examined the various letters addressed to the Adjutant General of the Army, in reply to his circular requesting certain officers to communicate information concerning Colt's pistols and those of other inventors, and their opinions as to the adaptation of these repeating arms to the service, which letters were submitted to you from that office, and sent over by you to this. I have prepared a brief of their contents, putting together the views and opinions of officers of different arms of service who have reported. That brief is inclosed herewith. The officers unite in preferring the *repeating principle* for cavalry pistols; some of them advise the adoption of Colt's pistols as they are; some think that, in order to be useful, they require improvement in their manufacture, such as would result from making them at the national armories; some think that the common dragoon pistol with Maynard's primer would be preferable to Colt's; some regard the revolvers as not a suitable weapon for the military service; and some think them adapted to that service to a limited extent, and for special purposes only. There is by no means that unanimity of opinion in regard to the advantages of Colt's pistols which would seem to require their adoption to the exclusion of the dragoon pistol. The views of these officers but confirm the opinion I expressed in my report to you of the 3d instant, viz, "that Colt's pistols may be used to advantage in the hands of skillful or careful men; that it would be premature to exclude entirely the use of the dragoon pistol; that the pistol, being a weapon calculated and suitable for personal defense alone, had its efficiency in this respect increased when made to *repeat*; that the repeating pistols (Colt's) cannot be advantageously used by the mass of our private soldiers for the want of the necessary discretion, coolness, and skill; and that they should be furnished to them in limited numbers only, to be placed in the hands of such men as their officers may select to be so armed."

I do not think it would be advisable at this time to purchase Colt's patent, and to undertake to make these pistols at the national armories. The cost of the patent right and of the requisite machinery to commence the manufacture of these pistols would be very great, and it would, in my opinion, be preferable to buy such of them as we may want. The letters sent to this office are returned herewith.

Respectfully, your obedient servant,

GEO. TALCOTT,
Bvt. Brig. General, Colonel of Ordnance.

Hon. C. M. CONRAD,
Secretary of War.

[Miscellaneous Letters, vol. 41, p. 492.]

ORDNANCE DEPARTMENT,
Washington, December 30, 1850.

SIR: Permit me to suggest the propriety of reoccupying the arsenal at Augusta, Georgia, as an arsenal of deposit and repairs of arms and other ordnance stores. The position of this arsenal renders it one of the best, if not the very best, of the southern arsenals for these purposes; but it has not been possible to use it so, except to a very limited

extent, for many years past, owing to the impracticability of properly conducting the operations of the Ordnance Department thereat while it was also a garrison for troops of the line. In order to have any permanent arrangement for properly carrying on ordnance operations there, the arsenal should be, like all the other arsenals, an ordnance post. As an artillery post it has been and probably will be subject to frequent changes in its garrison, sometimes occupied by a company or more, and then left suddenly without any garrison, reverting to the care of the Ordnance Department, and rendering it necessary to hire men to take care of the buildings and other public property there deposited. The history of this arsenal, since its construction on its present site under the law of May 20, 1826, will show many such changes, which have rendered it, although the best in point of location among the southern arsenals, the least useful as an arsenal.

The present distribution of arms and other ordnance stores throughout the country shows a disproportionately small quantity in the southern arsenals; but it is a necessary result of their positions at points either unsuitable from climate for the storage of certain articles, or from inconvenient access for the deposit of large quantities of supplies. The arsenal at Augusta is free from both these inconveniences. It is also in the midst of a large white population of the county and city, with organized volunteer companies at any time available, if needful, in aid of the enlisted force of ordnance soldiers regularly armed, equipped, and disciplined, which would be stationed there both as a guard and as a working party. Moreover, since the change in the mode of bringing in cotton from wagons to railroad conveyance, there is never so great an assemblage of negroes at that point as formerly, and consequently less necessity now for a strong guard at the arsenal; while the greater number of forts and other posts requiring garrisons of troops of the line, renders it less desirable to retain the arsenal as an artillery post. Taking this view of the case, in which it is respectfully presented to your consideration, I think the interests of the military service generally would be promoted by adopting the suggestion I have herein made. Whilst the service of the Ordnance Department would be improved by it, that of the artillery, it seems to me, would not be at all impaired or incommoded.

I trust, therefore, that you will concur in my suggestion, and give orders accordingly.

I am, very respectfully, &c.,

GEO. TALCOTT,
Bvt. Brig. Gen., Colonel of Ordnance.

Major-General SCOTT,
Headquarters of the Army.

[4 W. D., 1851.]

WAR DEPARTMENT,
Washington, January 4, 1851.

The Secretary of War directs, that hereafter, no communication be addressed by the head of any bureau of this department to any member or to the chairman of any committee of Congress, recommending legislation on military affairs.

All such communications should be made to the head of the department, and be, by him, communicated to Congress.

By order, &c.,

GEO. T. M. DAVIS,
Chief Clerk.

For the ORDNANCE OFFICE.

ORDNANCE DEPARTMENT,
Washington, January 9, 1851.

SIR: I have to acknowledge the reference to this office for report or the Hon. O. B. Matteson's letter of the 4th instant, inclosing one from Military Storekeeper J. S. Abeel, stating the insufficiency of his present compensation and requesting relief from Congress. Mr. Matteson requests that the facts stated by Military Storekeeper Abeel may be properly examined, and information given him on all points suggested.

The facts in relation to the compensation of military storekeepers of ordnance, including those applicable to Mr. Abeel's case particularly, are as follows, viz: The first authority for the appointment of this class of officers is to be found in the last clause of the fifth section of the act of March 3, 1813, which authorizes the Secretary of War "to fix the salary of storekeepers necessary for the safekeeping of all military stores and supplies." Under this authority military storekeepers of ordnance were appointed and their salaries fixed by the Secretary of War until the passage of the act of 5th July, 1838.

The amount of salary in each case was fixed according to the nature and extent of the duties of the officer and the responsibility for public property or money to which he was subjected; but these duties and responsibilities being generally about the same, and the compensation of storekeepers of the purchasing department having been designated by law (fifth section of act of April 27, 1816) not to exceed the pay and emoluments of a captain of infantry (\$954 per annum with quarters and fuel), that compensation was allowed in almost all cases. The twenty-sixth section of the act of 5th July, 1838, made the compensation thereafter to be allowed to military storekeepers, designated as paymasters, not to exceed the pay and emoluments of a captain of ordnance (\$1,182 per annum with quarters and fuel). Under this law every military storekeeper who disbursed public money was designated a paymaster, and nearly all of them received the pay and emoluments of a captain of ordnance. This continued until the passage of the act of August 23, 1842, by which the number of military storekeepers of ordnance, heretofore unlimited, was fixed, and they were divided into two classes, military storekeepers and paymasters, and military storekeepers; the number of the former being limited to *five*, at an annual salary of \$1,250, and that of the latter to *ten*, at \$800 a year, with quarters and fuel for both. These are the salaries and emoluments which are now fixed by law for these officers. Since the passage of the act last quoted (August 23, 1842) there has been special legislation for the relief of two of the military storekeepers of the second class: the first in the case of Military Storekeeper J. A. Webber, by the second section of the appropriation act for the Army, approved March 3, 1849; the second in that of Military Storekeeper David Butler, by the fourth section of the appropriation act for the Army, approved September 28, 1850. In both these cases special claims were urged, not applicable, in my opinion, to the case of Military Storekeeper Abeel. Mr. Webber was in charge of a large arsenal, where much work was done and a large force employed, where the value of public property intrusted to his charge was about \$900,000, and the annual disbursements amounted to about \$37,000. Mr. Butler, besides his duties as military storekeeper, was superintending the construction of an unfinished arsenal and had the supervision of a considerable number of hands employed on that work; the value of property in his charge was about \$250,000, and the average disbursements about \$9,000 a

year. Mr. Abeel has been in charge of an arsenal of the smallest class, long since finished, with but few men employed, and no duty but to take care of the public property and the stores. The value of the property in his charge has been about the same as that in Mr. Butler's, and his annual disbursements have been about \$900. These are their relative duties and responsibilities as officers of the Ordnance Department; in addition they, and all storekeepers similarly situated, have performed the duties of commissary and quartermaster, but what are the value and extent of these duties I am unable to state; if the enlisted force of the respective arsenals be a criterion, that at Rome Arsenal is much less than at either Watertown or Little Rock.

I know of no reason for increasing Military Storekeeper Abeel's salary, which is not applicable to all the other storekeepers of his class, but I think the compensation fixed by law for these officers is too low, and that an increase to \$1,000, applicable to all who now receive but \$800 a year, would be no more than a just compensation for their services and responsibilities.

Mr. Matteson's letter is returned herewith.

Very respectfully, your obedient servant,

GEO. TALCOTT,

Brevet Brigadier-General, Colonel of Ordnance.

Hon. C. M. CONRAD,

Secretary of War.

[Letters to Ordnance officers, vol. 12, p. 45.]

ORDNANCE DEPARTMENT,

Washington, January 13, 1851.

SIR: As increase of range and greater accuracy in artillery firing seem to be objects now engaging attention, I think it would be well for you to take up the subject and make some experiments on it as soon as it can be done conveniently. It seems to me, that for this purpose, you may use to advantage the 32-pounder gun with the bore of a 24-pounder, made at Mason's foundry, and now at your post. I suggest the use of an elongated shell with two flanges to fit in two grooves in the bore, and inclose a sketch of a shell, which, it seems to me, is the kind of projectile that will answer. At any rate it will serve as a starting point with which to begin experiments. I believe the idea of the shell is sufficiently plain from the sketch without farther explanation. The flange must be dressed smooth and to exact dimensions. The windage of the body of the shell is the usual windage; that of the flange is .01 of an inch on each side, so that the axis of the shell will rest *nearly* in that of the bore. The grooves of the bore need not be cut farther down than where the shell will rest with the smallest charge of powder, or at any rate no farther than the *cylinder* of the bore extends. A soft wad between the powder and the shell should be used to lessen the first shock of the explosion on the projectile. The grooves should begin at the bottom on the upper and lower elements of the cylinder of the bore, and advance to the muzzle with about one turn in 40 feet; the flanges on the shell to have, of course, the same degree of twist.

The foregoing remarks are given for your consideration, and to call your attention to the subject; I wish you to think of it, and to make such experiments as may be practicable without going to great expense, and as may seem requisite to test the practical value of the idea. If they

should prove this plan not to be feasible, they may suggest some other method of effecting the object in view.

Respectfully, your obedient servant,

GEO. TALCOTT,

Bvt. Brig. General, Colonel of Ordnance.

Bvt. Col. B. HUGER,

Fort Monroe Arsenal.

[15 A, 1851.]

ADJUTANT-GENERAL'S OFFICE,

Washington, January 18, 1851.

GENERAL: The Secretary of War, has decided that the law makes but *one* grade of storekeepers of ordnance, viz, "military storekeepers," and that the incidental duties of *paymaster* devolved on the storekeepers who may be stationed at the armories and arsenals of construction, do not constitute a second grade of "*paymasters and military storekeepers.*" The storekeepers will accordingly be arranged in the forthcoming Army Register in order of priority of dates of appointment, and it is requested they may be reported in like manner on the monthly returns of the Ordnance Department.

I am, sir, very respectfully, your obedient servant,

R. JONES,

Adjutant-General.

Bvt. Brig. General G. TALCOTT,

Colonel of Ordnance, Washington, D. C.

[Letters to W. D., vol. 10, p. 73.]

ORDNANCE DEPARTMENT,

Washington, January 28, 1851.

SIR: I have to acknowledge the reference to this office of a letter from the Hon. Thomas H. Bayly, chairman of Committee of Ways and Means, requesting that the committee may be furnished with proper estimates for the Army, on such basis that the expenses of the service shall not exceed five millions of dollars.

As regards the estimates for that branch of the military service in charge of this department, I have to remark that an analysis of the items will show that but a small portion of the contemplated expenditures is on account of the Army proper. The greater portion is required and intended for procuring munitions of war for the country generally, not to be immediately consumed, but to constitute a portion of the national wealth remaining on hand ready for any emergency, "a preparation for war in time of peace."

The only parts of the estimate which pertain to the expenses of the Army proper are parts of the items for the purchase of ordnance and ordnance stores and supplies, and of those for the current expenses of the ordnance service and for arsenals, amounting altogether to less than \$200,000. The sums estimated for the armaments of fortifications and for the national armories are to be expended in providing heavy sea-coast and garrison cannon and projectiles, materials for gun-carriages, rifles, and muskets. The money expended for these, reappears in the shape of artillery and small-arms; it is not lost, but converted into that

which is of far more value to the nation than money. That can be raised whenever required, but an emergency that would find the country unarmed or badly armed, could not be met by means of money only. With its merely nominal military force, the strength of this country for war-like purposes consists in its arsenals, filled with the admirable products of the ingenuity and skill of its own artisans. By far the larger portion of the estimates of this department, nearly the whole, is to be expended in paying these artisans, and in fostering and supporting that species of mechanical skill and ingenuity which is chiefly and almost exclusively applied to the construction of articles requisite for national purposes. A reduction of the estimates will throw out of employment these artisans, and direct that skill to other objects just in proportion to the extent of such reduction; and it will detract from the military strength of the nation just in the ratio of the dollars it may retain in the Treasury. In the last annual estimate from this department none of the items are *fixed* by law, but all are believed to be necessary for true economy as a reference to the remarks in detail appended to each item will show. To strike out the item for armament of fortifications will put back the preparations for that object, throw out of employment the mechanics now engaged in it, and out of use the shops, tools, and machinery which have been provided for carrying on the work in pursuance of the policy of the government. The same remark will apply to the estimate for the national armories. To collect workmen, revive the lost skill, and restore the shops, tools, and machinery to their original working order, when operations in these branches come to be resumed, will be attended with very great expense and trouble. To reduce these items will have the same effect in a less degree. But, if the circumstances of the country require it, it will be better to carry on these operations on a smaller scale than to abandon them, although either will be contrary to true economy. The other items of the estimate are *chiefly* for the proper care and preservation of valuable munitions of war, and other public property, worth many millions. The expenditures on this account are made as economically as is consistent with a proper performance of the same. To *scrimp* them will hardly be felt in the saving and will cause loss to a far greater amount. The total amount of the last regular estimate for this department, including for reasons stated, \$100,000 more than the usual appropriation for armament of fortifications, is \$989,815. The appropriations from the year 1840 to 1851, exclusive of 1847 and 1848 when war estimates were made, average per annum \$910,735 per annum.

I am, sir, respectfully, your very obedient servant,

GEO. TALCOTT,

Bvt. Brig. Gen., Colonel of Ordnance.

Hon. C. M. CONRAD,
Secretary of War.

[116 W. D., 1851.]

U. S. ARMORY, SPRINGFIELD, MASS.,

February 14, 1851.

SIR: I submit for the decision of the War Department this application to be recognized as entitled to the pay of my brevet rank under the law and according to the usages of the Army and the previous decisions of the War Department in like cases.

I think myself entitled according to all the principles which have

governed the department in recognizing similar claims of staff officers, and officers of staff corps and in the line.

The number of men under my command at the armory is 400, numerically a larger command than would establish my brevet command in the line.

My responsibilities of public property and public money are far greater than ordinarily appertain to my brevet rank. I believe that no other officer of my rank in the service has so great responsibilities of either description.

The principle which governed Mr. Spencer and the present head of the War Department and other Secretaries of War in determining questions of brevet command in the staff, and which principle, as I think, fully covers this case, was that the command (by reference to the customary distribution of commands and duties in the Army according to grades of rank) shall be fairly and justly found equivalent to the brevet rank.

That the command is in my own corps is, I respectfully submit, no valid objection, as a question of pay, inasmuch as all, or nearly all, the commands for which regimental officers receive brevet pay, are commands in their own regiments; and the regulations in force since 1818 make no distinction, as entitling to brevet pay, in favor of mixed commands out of the regiment.

That the command at the armory is not an armed body, which at one time the brevet pay-law was supposed to require, is an objection not sustained by the more ancient or more recent decisions, and is now entirely overruled by the recent laws expressly declaring the existence of military command in the staff, and that the armories are posts and commands of the Army within the meaning of other laws on the subject of pay.

Respectfully, your obedient servant,

JAS. W. RIPLEY,
Lieutenant-Colonel, U. S. A.

Brigadier-General TALCOTT,
Ordnance Department, Washington, D. C.

[1st indorsement.]

ORDNANCE DEPARTMENT,
February 26, 1851.

Respectfully submitted to the Secretary of War for his decision in the case, with the remark that Brevet Lieutenant-Colonel Ripley's statements herein, in regard to the numerical extent of his command and to the duties and responsibilities connected therewith, are correct.

The question of *law* in the case is not one for this department to discuss; but if it will admit of the allowance, it may be confidently asserted that its *equity*, in view of the valuable services of the officer, cannot be controverted.

G. TALCOTT,
Brevet Brigadier-General, Colonel of Ordnance.

[2d indorsement.]

The persons employed at Springfield Armory are civilians only, and, though the station is an important one, the portion of it that may be military does not constitute "a command" according to the rank of lieutenant-colonel.

C. M. CONRAD,
Secretary of War.

WAR DEPARTMENT, *April 29, 1851.*

ORDNANCE DEPARTMENT,
Washington, March 7, 1851.

SIR: On the subject of the Hon. Richard Parker's letter of the 3d instant, and the inclosed petition, referred to this office and received yesterday, I have to report.

I have known Mr. Moor, late master armorer at Harper's Ferry Armory, for many years; I am confident, much longer than any signer of the petition, or than Mr. Parker, and I fully concur with them in their estimate of Mr. Moor's character as a man of the strictest integrity and of unexceptional conduct. I also award to him the merit as a public servant, of diligence, faithfulness and devotion to his duties. I do not hesitate to say that during an employment at the government armories of many years, he has rendered good service, and it was with great regret that I found myself compelled by a sense of official duty, as the chief of the Ordnance Department, to whom the law confided the management of the national armories, and by my imperative obligation to execute that trust faithfully for the public interests, and regardless of personal feelings, to recommend a change of the incumbent in the office of master armorer, then held by Mr. Moor. It was with much reluctance that I did so, and had any other provision for Mr. Moor, by the government, been practicable, there is no one who would have more cheerfully borne testimony to his claims to such provision for long and faithful services, or who would have exerted himself more to obtain it. Indeed this consideration was present to my mind, when Mr. Moor came to me with his petition to Congress, claiming compensation for the mode of altering flint-lock arms to percussion, which he said had been adopted on his suggestion, and it certainly had its influence in the character of the testimonial from me, which accompanied that petition. It would seem that advantage is now taken of my kind feelings towards Mr. Moor, and of the influence which I could not prevent his long and faithful services and the integrity of his personal character, from exercising over me even in my official acts, and it is sought, from these, to convict me of misrepresenting him in regard to his qualifications for the office of master armorer. The duties of that office are not what they were formerly, when Mr. Moor undertook them, and performed them well and satisfactorily. The introduction of new machinery and improved processes of manufacturing have changed the duties, and consequently the requisite qualifications for that office, and one who might have been eminently competent formerly, would now, if he had not kept up with the improvements of the time, be altogether unfit. Such was the case with Mr. Moor; he had been so long habituated to a certain routine, to which he was, as it were, bred, that it was next to impossible to introduce any other under *his* management. He was behind the times. While it would give me sincere pleasure to see Mr. Moor in the receipt of a support from government, truth compels me to say that it would be better for the efficient economical management of the armory, to pay him the salary and hire another to do the duties, than to replace him in his former post.

Mr. Parker, after disposing of Mr. Moor's case, goes on to comment on other removals, and to imply that under the present state of things the quality of the arms manufactured is not as good as it was before, and that this inferior quality of workmanship is connived at for the purpose of showing a larger product for the amount expended. This is but a renewal of the attack, which has been frequently before made on the

present system of superintendence of the armories. That you may understand the matter correctly, permit me to go somewhat into details, in order to state it from the beginning.

In April 1841, the civil superintendents of the two national armories were removed from office by direction of the President of the United States, and officers of the Ordnance Corps were detailed to direct the concerns of each of the armories, agreeably to the ninth section of the act of February 8, 1815, which places the public armories under the direction of the Ordnance Department. (See Senate Doc. No. 345, second session, Twenty-seventh Congress).

In the following August, a board of citizens was appointed by the War Department to examine into the condition and management of one of the armories. That Board made a full examination, and their report is published in Doc. No. 207, House of Representatives, Twenty-seventh Congress, second session. I respectfully ask your attention to it, particularly their views in regard to the system of superintendence, on page 5 of the document.

By the second section of the act of August 23, 1842, the offices of civil superintendents of the armories were abolished, and their duties were devolved on officers of the Ordnance Corps, to be detailed by the President, and this system of superintendence has continued since. When the officers of the Ordnance Corps took charge of the armories, they found many abuses existing, the correction of which, and the complete reformation of the manner of conducting operations, were imperatively demanded by the public interest. This reformation was violently opposed by those who had been profiting by the abuses. They availed themselves of the plea of military despotism and oppression of citizens by officers of the Army, and succeeded in arraigning the superintendent of the Springfield Armory before a court of inquiry on various charges.

The proceedings of that court, which show a full, impartial, and patient investigation of all the allegations against the superintendent, involving also the comparative merits of the military and civil systems of superintendence, are published in full in Senate Doc. No. 344, Twenty-ninth Congress, first session. I respectfully refer you to this document for information on the subject, and particularly to the testimony of Mr. Pomeroy, page 150 to 152; to the comparative statement, page 170, and to the opinion of the court, as derived from testimony under oath, pages 199 to 205. The diminution in the cost of arms and improvement in their quality, found by this inquiry to have taken place, since the superintendence of the armories by ordnance officers, have steadily continued, and the operations of the last fiscal year will show a far greater return for the amount expended than was ever exhibited in the best days of the civil superintendence. At the same time the workmen receive as good, if not better wages than are paid at private establishments for the same services and skill, and they actually receive more than they did under the old system. Of these assertions there can be no doubt, as they are demonstrable by facts and figures.

The saving of *labor* on a musket, at Springfield Armory, since 1841, is \$3.70, making a total on 20,000 manufactured last year (there will be nearly, if not quite, 23,000 made this year), of nearly \$74,000.

The average pay received by each workman in the years 1840 and 1841, the last of the civil superintendence, was \$37.87 per month; in the year 1849 it was \$39.48. An examination of the arms, made under the two systems, will show immediately and conclusively a great superiority in quality for those last made. The Springfield Armory taken altogether will compare favorably, in all respects, with the best con-

ducted manufactories in our country, and it is now fully equal, if not superior, to any manufactory of arms of any other nation.

Although the Harper's Ferry Armory is still behind that at Springfield, the improvements there, since the change of the system of superintendence have been many and important, and are steadily advancing. It had run down under the old system more than the other and requires more time to bring it up; but at both establishments a like system of administration is producing like effects. No one acquainted with this armory prior to 1841, and the mode of conducting operations there at that time, who will visit and examine it now, can fail to be struck with its improved condition and better management. At both armories abuses, disorder, and confusion have given way to regularity, order, efficiency, and economy; the mode of manufacturing and the quality of the manufactures have been improved; arms are made at less cost; the workmen are better paid, their moral character is of a higher grade, and the great majority of them are satisfied and contented.

These are the fruits of the system of superintendence now existing. That some of the workmen employed at the armories should be discharged, is not to be wondered at. They had acquired, under the loose management of the old system, habits altogether unsuited to the stricter one of the new. A change of measures was absolutely necessary for a faithful, efficient, and economical government of the establishments, and it was impossible to effect it without a change of men. The removals and discharges have been as few as possible consistently with the public interest, and have in no instance been made without cause, and good cause.

Political influence or personal feeling, I have good reason to believe, and do conscientiously believe, has had nothing to do with them. As regards the experiment proposed by Mr. Parker, to change the commanding officer at Harper's Ferry armory, in order to see what effect the change will produce, I must say that I do not conceive the reason offered to be good or sufficient. The present commanding officer has effected many and important improvements in the operations of the armory, and has corrected many abuses. The establishment under his management has improved, and is improving. To effect this he has been obliged to run counter to the interests of some who derived benefit from the previous mode of conducting operations. Hence "the great complaints" made of him; and the "dissatisfaction" from this source will probably continue, so long as he perseveres in his improvements. But, in order to remove these complaints, and to stop that source of dissatisfaction, his successor must adopt new and different system of operations, whereby he will probably raise up new complaints, and open new sources of dissatisfaction, unless it should be his good fortune to unite the conscientious performance of his duty with the difficult task of pleasing everybody. Mr. Parker's letter, with its inclosure, is herewith returned.

I am, sir, respectfully, your obedient servant,

GEO. TALCOTT,

Bvt. Brig. Gen., Colonel of Ordnance.

Hon. C. M. CONRAD,
Secretary of War.

ORDNANCE DEPARTMENT,
Washington, March 20, 1851.

SIR: The inclosed paper, which is respectfully submitted for your consideration, has been prepared after careful reflection on the subject to which it relates. I have made it as brief as possible so as to present the different items of reduction in a condensed form, but in order that my views may be fully understood, I deem it necessary to accompany it with the following remarks:

In the proposed plan I have lopped off or curtailed every admissible expenditure, bringing down the expense of that branch of the military service under my supervision to the lowest amount which my long experience and intimate knowledge of all its details convince me are consistent with the public interest and true economy.

The proposed reductions include everything that can be properly dispensed with; to attempt to push them farther, or to change the specified objects, would disorganize a matured system and involve future expenditures to a *large* amount, in order to come back at last to the point started from. The plan is emphatically a *minimum for a peace establishment* with a capacity of *expansion*. If there be any error in it, it is that of too great a reduction; but I am willing to undertake the efficient performance of the duties of my branch of the military service in time of peace with these reduced means, or at any rate to try the experiment. The plan proposed may admit of modifications in some of the details, should they seem advisable in your judgment; for instance the time of receiving proposals, as stated in the first item, may be changed; also the mode of payment, instead of being cash may be on time, or partly both. The reduction proposed in the fifth item requires legislation to effect it, and in making that legislation the phraseology of the law should be carefully prepared to meet the objects to be effected. If, therefore, you should determine to recommend it to Congress, I would respectfully suggest that the form of a suitable bill be prepared by your directions at this office, and submitted for your approval, to accompany such recommendation.

I remain sir, very respectfully, your obedient servant,

GEO. TALCOTT,

Bvt. Brig. Gen., Colonel of Ordnance.

Hon. C. M. CONRAD,

Secretary of War.

[Inclosure.]

Plan for reducing the expenditures of the Ordnance Department, so as to bring them to a *minimum* for a peace establishment, retaining at the same time the capacity of expanding its operations to almost any extent in case of necessity.

1st. Break up the small arsenals of deposit at Vergennes, Vermont; Rome, New York; Beltona, Virginia; Liberty, Missouri; and Chattahoochie and Saint Augustine, Florida. Let all the ordnance and ordnance stores now in deposit at these places be carefully inspected, and those which are worth the cost of transportation be sent to the nearest arsenals; the rest sold at public auction to the highest bidder. Then let the lands and buildings pertaining to the above named depots, and also to that of Memphis, Tennessee (which has been for many years abandoned as an ordnance depot), be disposed of as follows, viz: Advertise for

purchasers in the public prints, and receive proposals for three months to buy them, for cash on delivery of title and possession; each bidder to send with his bid evidence of his ability to pay the amount. Take the highest bid for each, and give possession as soon as possible. The authority for establishing these arsenals is to be found in the act of 23d April, 1808, section 2 (Cross's Military Laws, p. 129), for Bellona Arsenal, and the arsenals at Vergennes, Vermont, &c.; Rome, New York, and the ordnance depot at Saint Augustine, Florida, in the act of 5th April, 1832 (United States Statutes at Large, vol. 4, p. 502), for the arsenal at Apalachicola in Florida; and in the act of 2d July 1836 (United States Statutes at Large, vol. 5, p. 78), for the ordnance depots at Liberty, Missouri, and at Memphis, Tennessee.

It is thought that the act of March 3, 1819 (Cross's Military Laws, p. 205), gives the Executive full authority to break up these ordnance depots, and to dispose of them as above suggested. They are now useless for military purposes, and are a source of constant expense to maintain them. It is estimated that, by adopting the course herein suggested, the reduction of expenditure will be as stated in the 2d and 5th items hereafter.

2d. Reduce the number of enlisted men of ordnance to 250. The act of June 18, 1846, section 11 (Cross's Military Laws, p. 287), gives the Secretary of War authority to make this reduction. The estimated reduction of expenditure by this diminution of the enlisted force will be immediate, \$59,680 per annum.

3d. Curtail the extent of operations at the national armories as soon as the present appropriations are expended. With the stock of small-arms that will be on hand at the end of the next fiscal year, the number annually made may be reduced without a diminution of that stock by loss and wear and tear. This reduction may be effected in preparing the next estimates, and will amount to \$160,000 per annum for the manufacture of arms, to which may be added a further estimated reduction in the estimates for repairs and improvements and new machinery of \$20,000, making in all \$180,000 per annum.

4th. If the proposition in the first item be adopted, it will enable the Ordnance Department to reduce its next and future annual peace estimates by about the following amounts, viz: Purchase of ordnance and ordnance stores, by \$20,000; current expenses of the ordnance service, by \$20,000; and arsenals, by about \$40,000; in all \$80,000 per annum.

5th. The reduction in the number of arsenals proposed in the first item, and the consequent reduction of expenditures, as per item four, will enable the Ordnance Department to dispense with filling up vacancies as they may occur until the number of captains is reduced to ten, what it was prior to the act of March 3, 1847, the number of first lieutenants to the same (ten), and the number of military storekeepers to five. This will require legislation to effect it. The reduction of expenditure thereby will be as follows, viz, prospective and gradual, \$9,720 per annum.

RECAPITULATION.

[Reduction of expenditure may be effected by Executive authority requiring legislation.]

	Immediate.	In future estimates.	Prospective and gradual.	Total.
Second item	\$59,680	.....	.....	\$59,680
Third item	\$180,000	.....	180,000
Fourth item	80,000	.....	80,000
Fifth item	\$9,720	9,720
Total	329,400

[76 H., 1851.]

CHARLESTON ARSENAL,
March 20, 1851.

GENERAL: In answer to your letter of the 13th instant, I have the honor to state that I have examined the different magazines here and at the forts and I find them all quite dry and good and capable of storing, in addition to their present contents, as follows: Fort Moultrie, 100 barrels; Castle Pinckney, 30 barrels; Arsenal, 20 barrels. I presume that you would not desire to have so large a supply here, and inclose herewith an estimate, based upon a probable sufficiency for present service, 25 rounds per gun. The magazines at the forts are so much exposed to accident from their doors opening near and in line with the kitchen chimneys, that I would recommend that bulkheads be made for each of them—of glazed frames—to be temporarily attached on each side of and over the door, when the room is to be aired or when work is going on within it. They should be light and portable, hooking together roof and sides and then to be hooked against the wall. The door of the bulkhead *not* opposite to that of the magazine. Such temporary pent-houses may very properly, I presume, be furnished by the Ordnance Department. I think I could make arrangements to provide for their proper safe-keeping as ordnance stores. Something is essentially required both at Fort Moultrie and the Castle, as it is now dangerous to open the magazine doors, and it would not be prudent to add to their supply until further means of security from an accidental spark of fire from the adjacent chimneys are provided. These glass bulkheads would be of service. The magazine at this arsenal is situated at the southwest corner of the lot. I felt it my duty to call the attention of the inspector to its position only 12 feet from the public street and within 60 feet of a row of frame houses opposite to it. I think that steps should be taken at once to purchase the houses opposite and block up the street, and also secure a communication by water with the Ashley River, so that we may not be hemmed in as we are at present, unable to store our supplies except by passing through the public streets. Having now nearly 750,000 musket cartridges in barrels and boxes and about 35 boxes of fixed ammunition in the magazine, I think the first named should be reduced in quantity before sending much more powder here.

I request that an iron sling-cart may be sent from Fort Monroe, as I shall need it in moving the guns and carriages. As regards a distribution of projectiles, I propose sending to Castle Pinckney such portions of the 42-pounder shot here as you may think necessary and to Fort Moultrie the 32-pounders. At Fort M. there are 18-pounders, not needed, but they may as well remain there as here. Forty-two, 32, 24, and 8-inch grape. and 42, 32, and 8-inch canister (I have old pattern 24-pounder canister, which I have recently made serviceable) should be sent for both forts, as none of either are on hand. If implements complete are sent with the carriages from Fort Monroe, as desired in my letter, I will be enabled to fit out both forts completely, as follows: Fort Moultrie having fourteen 32-pounder, sixteen 24-pounder, and five 8-inch howitzers, with powder for 25 rounds per gun, and 25 rounds of grape and canister for *each caliber*.

Castle Pinckney having four 42-pounder casemate, four 24-pounder casemate, four 24 pounder barbette, and two 8-inch howitzers, with powder for 25 rounds per gun, and 20 rounds of grape and canister for 42's, and 40 for 24's, and 10 of each for 8-inch howitzer. Twenty-eight barrels of powder would be required for Fort Moultrie, ten barrels of powder

for Castle Pinckney, and ten barrels for this arsenal, in addition to that now on hand. Unless it be necessary, for reasons not known to me, to increase beyond this amount the supply at the forts, I would not advise that more be sent, as both forts are much crowded and neither magazine of the safest kind.

Most respectfully, sir, your obedient servant,

P. V. HAGNER,
Brevet Major, Commanding.

Col. GEO. TALCOTT,
Chief of Ordnance, Washington City.

[First indorsement.]

Respectfully laid before the Secretary of War. I have desired the Chief of Ordnance to cause the glazed bulkheads to be prepared at once, the amount of ammunition at Fort Moultrie to be increased to the extent that can be stored, and all the more important *material* in the Charleston Arsenal to be quietly removed elsewhere, although I think the secession of South Carolina is less probable than it has been.

WINFIELD SCOTT.

MARCH 28, 1851.

[Second indorsement.]

Approved:

C. M. CONRAD,
Secretary of War.

MARCH 25, 1851.

[79 W. D., 1851.]

General Talcott will please prepare and send me as early as practicable a statement of the usual annual expenditures at each of the arsenals, the sale of which he recommends, including the number of persons employed at each, in what capacity, and at what salaries.

C. M. CONRAD,
Secretary of War.

MARCH 25, 1851.

[Letters to W. D., vol. 10, p. 109.]

ORDNANCE DEPARTMENT,
Washington, March 26, 1851.

SIR: The accompanying tabular statement, containing the information called for by your note of yesterday, is respectfully transmitted in answer thereto.

Respectfully, your obedient servant,

GEO. TALCOTT,
Brevet Brigadier-General, Colonel of Ordnance.

Hon. C. M. CONRAD,
Secretary of War.

Statement of the usual annual expenditures at each of the arsenals named below, including the number of persons employed at each, in what capacity, and at what salaries.

Arsenals.	Usual annual expenditures, average of three years.	Number of persons employed and in what capacity.							
		Military storekeeper's pay and allowances, each \$864 per annum.	Ordnance sergeant's pay and allowances, each \$320 per annum.	Hired men.		Enlisted men.			
				Capacity.	Pay per diem.	Armors, \$334 per annum.	Carriage-makers, \$334 per annum.	Blacksmiths, \$334 per annum.	Artificers, \$262 per annum. Laborers, \$204, per annum.
Bellona	\$430	.....	1	1 mechanic <i>a</i>	\$1 60	.....	.....	.....	.....
Champlain	515	1	.....	1 laborer <i>a</i>	1 00	.....	.....	.....	.....
Missouri	3,337	1	.....	2 mechanics <i>a</i>	1 50	1	1	1	.....
				1 laborer <i>a</i>	1 00	.....	.....	.....	.....
				3 mechanics <i>b</i>	1 50	.....	.....	.....	.....
				2 laborers <i>b</i>	1 00	.....	.....	.....	.....
				1 watchman and messenger.	1 50	.....	.....	.....	.....
Rome	845	1	.....	2 mechanics <i>a</i>	1 50	.....	4	1	1
Saint Augustine	815	1	.....	1 laborer <i>a</i>	75	.....	.....	.....	.....
Apalachicola	2,922	1	.....	2 mechanics <i>a</i>	1 25	.....	.....	.....	.....
				2 laborers <i>a</i>	70	.....	.....	.....	.....
				1 clerk	1 75	.....	.....	.....	2
				1 teamster (slave)	\$25 per month.	.....	.....	.....	3
				2 mechanics <i>a</i>	\$2 00	.....	.....	.....	.....
				2 laborers <i>a</i>	1 00	.....	.....	.....	.....
Total	8,864	5	1	24	.....	1	5	2	3

a Employed occasionally, say one-fourth of time.

b Not constantly, say three-fourths of the time

[54 A., 1851.]

ADJUTANT-GENERAL'S OFFICE,
Washington, March 26, 1851.

SIR: In reply to your request of the 14th instant, indorsed upon the letter of Ordnance Sergeant James Armstrong, "that a decision may be made as to the proper construction of paragraphs 445 and 897, General Regulations of 1841," &c., I have to inform you that when there are troops stationed in the harbor of Pensacola the commanding officer thereof is the proper person to sign the returns of ordnance property at the several ports. If there be no troops in the harbor, Major Chase, or the officer who may be on duty in the harbor, should sign them.

A copy of this letter will be sent to Lieut. Col. Whiting and Major Chase.

I am, sir, very respectfully, your obedient servant,

L. THOMAS,
Assistant Adjutant-General.

Bvt. Brig. Gen. G. TALCOTT,
Colonel of Ordnance, Washington, D. C.

[94 W. D., 1851.]

WAR DEPARTMENT,
April 4, 1851.

The chief of each of the bureaus of this department will cause to be kept in his office accounts exhibiting, under the several heads of appropriation, the amounts expended for the service of each fiscal year commencing with and including the current year. In these accounts the expenditures will be referred, not to the year in which the money may have been paid, but to the year for the service of which the expenditure was made or the liability incurred, whatever be the date of the payment. An account will also be kept of all payments which have been or may be made out of the appropriation of the present year or future appropriations, for debts and liabilities contracted prior to the commencement of this year, July 1, 1850; specifying, if practicable, the particular year in which the debt or liability was incurred.

The accounting officers are requested to keep each bureau advised of every payment or settlement made at the Treasury affecting its appropriations for the current and future fiscal years, the object of the expenditure, and the period to which it is chargeable.

C. M. CONRAD,
Secretary of War.

[49 G, 1851.]

AUGUSTA ARSENAL, GA.,
April 14, 1851.

SIR: I have to report that the brick wall around the top of roof of the arsenal building, gutters placed therein, and some slating of said roof, require renewing before the balustrade can be put up. I have, therefore, prepared an estimate of cost of the necessary repairs, which is herewith respectfully inclosed.

Inspector-General Churchill visited this post on Saturday, 12th inst., and recommended repairs of plastering in soldiers' quarters, which is much required; also to office, which leaks very badly. In consequence of the uncertainty in my mind, under present occupancy of this post, whether the Quartermaster's Department should not incur the expense of the two latter buildings, I have made no report of their condition, and respectfully request instructions on the subject.

I am, sir, your obedient servant,

JOHN M. GALT,
Military Storekeeper of Ordnance.

Brigadier-General GEORGE TALCOTT,
Ordnance Department, United States Army, Washington.

[First indorsement.]

ORDNANCE DEPARTMENT,
April 19, 1851.

Funds for repairing the *arsenal building* will be supplied out of the appropriation for "arsenals," made on the estimates of this department. But as Augusta Arsenal has been for some time, and is now, held as an artillery post, and the barracks, with most of the other buildings, have been taken from the control and assignment of this department, its funds are not applicable to their repairs, at least, so long as the post is diverted

from the purposes of an arsenal. So much of this letter as relates to these repairs is, therefor, respectfully referred to the headquarters of the Army. My letter to the General-in-Chief, of the 30th December, 1850, is also referred to in this connection.

GEO. TALCOTT,
Bvt. Brig. General, Colonel of Ordnance.

[Second indorsement.]

This communication having been submitted to the General-in-Chief, he remarks that though it is not intended to send troops to Augusta Arsenal at present, it may be necessary at some future day. He will give no directions in regard to repairs to the buildings; but the Colonel of Ordnance can, at his discretion, make such repairs as may be necessary.

L. THOMAS,
Assistant Adjutant-General.

ADJUTANT-GENERAL'S OFFICE,
May 24, 1851.

[Letters to Ordnance Officers, vol. 12, p. 201.]

CIRCULAR.

ORDNANCE DEPARTMENT,
Washington, April 15, 1851.

SIR: The Secretary of War having directed that an account be kept in each of the bureaus of the War Department of the amount expended during each fiscal year, under the several heads of appropriations, and that such expenditures be stated with reference to the fiscal year *in which the indebtedness occurred*, this information will be given in the quarterly accounts hereafter to be rendered by officers of this department. The indorsement on the abstract of disbursements for the "Ordnance Office," will hereafter be as follows, viz:

For liabilities incurred during the fiscal year, 18—:

Ordnance service.....	\$
Arsenals	
Armament of fortifications.....	
Ordnance, ordnance stores.....	
Arming the militia.....	

For liabilities incurred during the fiscal year 18—:

Ordnance service, \$——, &c., including each appropriation under which expenditures have been made, and *none other*.

Respectfully, your obedient servant,

GEO. TALCOTT,
Bvt. Brig. General, Colonel of Ordnance.

Copy of above to all officers commanding ordnance establishments.

[Letters to Ordnance Officers, vol. 12, p. 147.]

CIRCULAR.

WAR DEPARTMENT,
Washington, April 16, 1851.

No taxes will hereafter be paid upon any public property in charge of this department without the previous approval of the Secretary of War.

The heads of bureaus will communicate this order to all officers by whom such payments might otherwise be made.

C. M. CONRAD,
Secretary of War.

Copy to all ordnance posts and stations April 21, 1851.

[Miscellaneous Letters, vol. 42, p. 101.]

ORDNANCE DEPARTMENT,
Washington, April 30, 1851.

SIR: Believing that the enlisted men of ordnance are entitled to "certificates of merit" equally with other soldiers, by virtue of the joint resolution approved August 10, 1848, placing them as regards bounty land and "*other remuneration*" on a footing with non-commissioned officers, privates, and musicians of the Army, I desire respectfully to call attention to the letter on this subject addressed to you by me on the 21st May, 1849. As there has been no action on that letter, I presume that the provisions of the joint resolution, before referred to, have escaped your notice; as they had mine when the letter was written.

Respectfully, &c.,

GEO. TALCOTT,
Bvt. Brig. Gen., Colonel of Ordnance.

Gen. R. JONES,
Adjutant-General, U. S. Army.

[85 A, 1851.]

ADJUTANT-GENERAL'S OFFICE,
Washington, May 6, 1851.

SIR: In reply to your letter of the 30th ulto., urging the claim of ordnance men who served in Mexico to "certificates of merit," I have to inform you that the Secretary of War declines to entertain the subject any farther.

I am, General, very respectfully, your obedient servant,

L. THOMAS,
Assistant Adjutant-General.

Bvt. Brig. Gen. G. TALCOTT,
Colonel of Ordnance, Washington, D. C.

[Letters to Ordnance Officers, vol. 12, p. 188.]

ORDNANCE OFFICE,
Washington, June 4, 1851.

SIR: I have received your letter of the 2d inst., inclosing Bvt. Maj. F. O. Wyse's requisition, approved and directed to be complied with by Brevet Major-General Wool.

You state that you have issued the articles required and request an order to cover the issue. In forwarding the inclosed order for supplies, I must not be understood as approving the irregular manner in which the requisition was received and complied with by you. Paragraphs 893 and 894 of the General Regulations for the Army (edition of 1841) and articles 75 and 76 of the Ordnance Regulations clearly define the manner of transmitting such requisitions. I have no authority to disregard any requirement of these regulations, or to overlook it when done by officers of the department; and must therefore call your attention to the present case, the first of the kind, at your post; and request a more careful observance in future.

Respectfully, your obedient servant,

GEO. TALCOTT,
Bvt. Brig. Gen., Colonel of Ordnance.

Bvt. Maj. WM. A. THORNTON,
Watertown Arsenal.

[Letters to Ordnance Officers, vol. 12, p. 198.]

CIRCULAR.

WAR DEPARTMENT,
January 29, 1851.

The Quartermaster-General, the Commissary-General, and the Colonel of Ordnance will not hereafter make or authorize any contracts for supplies or for arms and munitions of war, to be furnished, or for services to be performed, to an amount exceeding two thousand dollars, without previously submitting such contracts or propositions to the Secretary of War.

C. M. CONRAD,
Secretary of War.

For the COLONEL OF ORDNANCE.

ORDNANCE DEPARTMENT,
Washington, June 13, 1851.

SIR: The foregoing instructions from the War Department are transmitted for your information and government; and your attention is called to the requirements of article 132 Ordnance Regulations, which must be strictly observed.

Respectfully, your obedient servant,

H. K. CRAIG,
Lieutenant-Colonel Ordnance.

To all officers of the Ordnance Department having authority to make disbursements.

[Letters to Ordnance Officers, vol. 12, p. 218.]

CIRCULAR.

ORDNANCE DEPARTMENT,
Washington, July 8, 1851.

SIR: I have to call your attention to the regulations concerning the employment of women as laundresses and hospital matrons, and to require their strict observance. Where the garrison is less than a company *no matron* is allowed.

One woman, as laundress, is allowed to a detachment of 18 men *or less*; two, to a detachment between 18 and 36; three, to a detachment between 36 and 54, and so on in the proportion of one woman to eighteen men.

Issues of subsistence stores, and quartermaster's stores to guards and hospitals, must also be confined to such quantities as are strictly necessary for public purposes.

Respectfully, your obedient servant,

H. K. CRAIG,
Lieutenant-Colonel Ordnance.

To all officers commanding posts.

[Miscellaneous Letters, vol. 42, p. 177.]

ORDNANCE DEPARTMENT,
Washington, July 12, 1851.

SIR: I have read and considered the letter of Bvt. Brig. General Harney of the 12th June last, with the inclosed papers referred by you to this department.

General H. recommends the abandonment of the musketoon as an arm for cavalry, and the arming of his regiment with Colt's carbines. The subject of a proper fire-arm for cavalry, in addition to the pistol, is one which has received great attention; on which the views of experienced officers have been taken, and many experiments have been made. The results of these inquiries and experiments have been uniformly and invariably in condemnation of all breech-loading arms, including Colt's carbine. I quote on this subject from a report of the Ordnance Board in 1846:

"After duly considering the subject the Board have the honor to report that there have been innumerable trials made of arms loading at the breech. The principal advantages of these kinds of arms are, a greater and more exact range with less recoil. This results from their being fired with a ball which fits exactly, or slugs, which allows the charge to be reduced. It is necessary to add that when the mechanism is well contrived they may be handled with ease and quickness, an advantage of some importance but often greatly exaggerated. Unfortunately, these advantages appear difficult to obtain, combined with sufficient solidity, simplicity, and durability. The first trials of these arms were anterior to the flint-lock. The application of this principle has been made in various ways, but the almost innumerable varieties may be classed under three heads.

"1st. Those with an opening on the top of the barrel.

"2d. Those which open the rear end of the barrel.

"3d. Those in which the chamber is raised or moved from the line of the barrel so as to allow the introduction of the charge.

"The same general objections have been found to exist to all these methods, viz, want of solidity of the parts most exposed to the action of the charge, the liability of the movable parts to become unserviceable by their getting fast from rust or dirt deposited at each discharge, and the escape of the gas through the joints or junctions of the different parts.

"The defects inherent to this method of loading have been such that, notwithstanding the repeated trials made with it for centuries, and the many ingenious and well executed contrivances offered of late years, of which those of Hall, Colt, and Jenks, in this country, deserve mention, this method of loading has not been adopted for arming troops in any country, except partially in this, nor has it been brought into general use for other purposes. In France there are a great variety deposited in the Musée d'Artillerie, among others the amusette of Maréchal Saxe, the principle of which is very similar to the one now under discussion. The authority of Maréchal Saxe in all that related to war was such that a great number were fabricated. The dragoons of his regiment were armed with a carbine on the same principle, and the marine received a great number in their arsenals. Experiments on a large scale proved unfavorable and their use was abandoned. In 1831 a 'fusil de rempart' (wall piece), loading at the breech, was adopted in France, but when tried more extensively it was found not to answer, and it has also been abandoned. Trials made of late years to adapt a carbine of this kind for cavalry have not proved favorable. Such being the facts, this board, charged with the duty of prescribing the kind and quality of arms to be provided for our troops, must be thoroughly satisfied that an arm loading at the breech is free from the defects which have heretofore prevented their general use before they can recommend to the War Department to go to the expense of making so great a change in our arms."

Also from a letter of Colonel Sumner, dated "Carlisle Barracks, August 27, 1841": "In compliance with your letter of June 23d last, I have made many experiments with Colt's and Jenks' carbines. I have devoted a good deal of time and care to these trials, and as I felt no bias for or against either of these guns at the beginning, I trust my report will be a perfectly fair one. I am satisfied that Colt's repeating carbine will not do for military purposes; it is too liable to get out of order and too liable to accidents. If there is the slightest flaw in a ball (which would be very common on service) two or more charges will explode at once, which makes the use of them very dangerous. This accident has repeatedly happened at this post, and there is nothing to counterbalance this risk, for they cannot be fired faster than the guns with the single chamber, except the first load, which is of course fired in a few seconds (if nothing gets wrong), and then there is a long interval while filling the cylinder again."

"I have cut off six inches from one of Jenks' carbines, and after many trials I cannot perceive that it makes the least difference in accuracy or force."

"This makes the piece a very convenient weapon for horsemen, and if it was made with a *whole barrel and a swivel for the rammer* it would be by far the best fire-arm we have ever had. You will perceive by the memorandum inclosed that no time of any consequence is saved by loading at the breech; indeed, when the pieces become foul, the gun loading at the muzzle can be fired with more quickness, and it is infinitely better in all respects. I have never yet seen a gun that loaded at the breech

that was not more liable to accidents than the whole barrel, and I am convinced that eventually these "broken back" guns will be pronounced imperfect and discarded altogether. The stocks of Hall's carbine, that we have now in use, are continually splitting and flying in all directions."

The facts and views thus elicited led to the adoption of the present cavalry musketoon, an arm "with a whole barrel and a swivel for the rammer." If it be not a suitable arm for cavalry, I know not where to look for one that will answer. There are some defects in it which have been heretofore brought to the notice of this department, when prompt measures were taken to correct them. The chief of these, and that which caused the failure of a third of the musketoons of Major Arnold's company, was the want of a ramrod spring. These springs are attached to all these arms now making, and a supply of them has been sent to the ordnance officer at San Antonio to be inserted in the arms of the troops in that military department. The breaking of the screw of the swivel, I think, may be attributed to carelessness in drawing the ramrod and ramming the cartridge, or want of instruction in the proper mode of doing so. It requires some skill to do it replete, which is, however, easily taught and acquired. But if this screw and the swivel bar ring break frequently, the defect may be readily corrected by making them stronger.

As regards the excessive recoil, I cannot account for it, but on the supposition that the wrong cartridges may have been used or more than one inserted. The musketoon, it is true, is lighter than the musket by two pounds, although of the same caliber; but it has a less charge of powder in proportion to the weight of its ball than any other arm, it being one-fifth of that weight, while that of the musket is one-fourth, and of the rifle and carbine one-third. As regards accuracy of fire, it is not expected that cavalry should be armed as sharpshooters, or that they should use their fire-arms at great distances; considering the size of the target, the firing at 50 yards as reported was not bad.

In connection with this matter, it may not be irrelevant to state that Colonel Twiggs, when commanding the Second Dragoons, protested, in advance of their being remounted, against the use by his regiment of any breech-loading or patent arms of any kind whatever. The same change of views which has since taken place may occur again and again on a change of commanders, and if attended to, there will be no end to the variety of arms.

This department is always desirous to be informed of any defects in the arms or munitions of the troops; to receive suggestions as to their improvement, and to adopt all such as appear really useful. But when things have been deliberately and maturely considered, examined, and tried before adoption, it is not deemed advisable to abandon them without full and convincing proof of some decided advantage to result therefrom. Besides the steps which have been taken to correct one of the defects pointed out, the others will be attended to likewise.

Respectfully, &c.,

H. K. CRAIG,
Lieutenant-Colonel of Ordnance.

Maj. Gen. R. JONES,
Adjutant-General, United States Army.

[Miscellaneous Letters, vol. 42, p. 181.]

ORDNANCE DEPARTMENT,
Washington, July 14, 1851.

SIR: When the pattern of regulation swords prescribed by paragraphs 92 and 95 of the regulations for the uniform and dress of the Army was adopted, the Secretary of War directed the Ordnance Department to have a proper supply manufactured for issue to officers at cost price; the object being to secure uniformity and good material. This department accordingly ordered 800 swords with leather scabbards for officers not mounted, and 150 with steel scabbards for mounted officers; the former of two sizes, viz: 250 with blades 32 inches long, and 550 with 30½-inch blades; the latter of but one size, 32-inch blade.

A portion of the order has been executed, and about 200 of the swords with leather scabbards are ready for issue. The rest are in course of fabrication, and will be supplied to officers as fast as they are received. Those already received are in store at New York Arsenal, Governor's Island, and it is intended to deposit some at the Saint Louis and Baton Rouge Arsenals. They can be obtained by applying to the commanding officer of either of the arsenals where they are deposited, in accordance with the provisions of article 72, Ordnance Regulations, as modified by the third paragraph of General Orders, No. 19, of March 30, 1849.

Understanding that swords similar to the regulation pattern, but not regularly inspected and proved, and consequently not known to be of good quality or of the prescribed uniform pattern, are about to be brought into the market, I have to request that the attention of officers may be called to the measures which have been adopted by direction of the War Department for furnishing swords of the proper pattern and quality, and that they may be informed of the proper mode of obtaining them. The cost price of the steel scabbard sword (paragraph 92) is \$20, that of the other (paragraph 95) is \$15.

Respectfully, &c.,

H. K. CRAIG.
Lieutenant-Colonel of Ordnance.

Maj. Gen. R. JONES,
Adjutant-General, United States Army.

[177 W. D., 1851.]

WAR DEPARTMENT,
Washington, July 21, 1851.

SIR: I request that you will report whether any, and what, measures have been taken by you to carry out the instructions given by this department on February 25, 1851, relative to the reduction of expenditures, and whether any and what curtailments of the expenditures in your branch of the service has resulted, or is likely to result, from the measures thus adopted by you.

Very respectfully, your obedient servant,
C. M. CONRAD,
Secretary of War.

COLONEL OF ORDNANCE.

ORDNANCE DEPARTMENT,
Washington, July 26, 1851.

SIR: I have been furnished by the Paymaster-General with a copy of your letter dated 24th instant, concerning additional rations to ordnance and engineer officers.

I regret much that the cases of both classes of officers should have been presented to you *blended* together. Believing them to be distinct and to stand on essentially different grounds, I think that a decision which may properly apply to one may not be applicable to the other. I, therefore, respectfully address you, in order to lay before you all the facts touching legislation on this subject and subsequent interpretation of it so far as regards ordnance officers. Ever since the passage of the act of 23d August, 1842, it has been claimed that a proper construction of its sixth section would include arsenals and armories as double-ration posts. This claim was presented in a memorial to Congress early in the session of 1848-'49, and referred to the Committee on Military Affairs in both houses.

The Senate committee reported a bill on 11th January, 1849, declaring that the provisions of the sixth section of the act approved August 23, 1842, should "include, from and after the date of this act, commissioned officers commanding 'arsenals' or 'armories,' being separate and 'fixed or permanent posts' of the Army, United States." When it was so near the close of the session as to make it evident that the intervening time was too short to admit of the passage of this bill, the amendment to the appropriation bill for the Army (act 3d March, 1849) was adopted by Congress in the essential words of the bill and to effect the same object. A comparison of the amendment with the previously reported bill from which I have quoted will show that its object was to give a legislative exposition of the sixth section of the act of 23d August, 1842. The language used and the quotations distinctly mark it as *explanatory* of that act.

In order to settle the point, an interpretation was requested of the Second Comptroller, by letter from the Ordnance Department, herewith inclosed, marked No. 1, and his answer was soon after received, also inclosed, No. 2, both of which are now respectfully submitted for your examination. Relying on this decision of the Second Comptroller, the Chief of the Ordnance Department addressed the inclosed letter, marked No. 3, to the chairman of the Committee of Ways and Means, to prevent a continued reiteration of the same language in the appropriation bills, because it was unnecessary and not usual.

When Mr. Spencer, Secretary of War, decided that double rations should not be granted to commandants of arsenals and armories, which decision is dated 14th October, 1842, it was on the sole ground that they were not, in his opinion, "garrisoned with troops." He did not question that they were posts. They are garrisoned by enlisted men of ordnance, commanded by officers of the United States Army. The duties of these garrisons, like those of any other posts, are to defend them against an enemy, to keep them in good order, to take care of the public property deposited thereat, or to do either or all of these things. The men stationed at the arsenals are enlisted, uniformed, subsisted, paid, armed, equipped, and drilled; they are subject to the rules and articles of war; they regularly mount guard just as any portion of any one of the regiments of the line would do, if stationed at the same places, and they are liable to be ordered to duty in an enemy's country and to stand up in line of battle under an enemy's fire, as they have

done, with honor to themselves and their corps. They are entitled to receive pensions like other soldiers, and the law granting them pensions expressly admits them to be "regular troops in the service of the United States." *This law is the act approved July 10, 1848. It is subsequent to Mr. Spencer's decision against the claim for double rations on the sole ground that the arsenals were not "garrisoned by troops," and fully answers and refutes such an objection at this time.*

I trust that I have brought before you such additional evidence and facts as will induce you to review the case *as regards ordnance officers*, and as will show that not only are the arsenals and armories military posts, but that the enlisted ordnance men are troops, regular "troops in the service of the United States," and that in regard to them all the conditions of the law of August 23, 1842, are satisfied.

Respectfully, &c.,

H. K. CRAIG,
Colonel of Ordnance.

Hon. HILAND HALL,
Second Comptroller of the Treasury.

[Miscellaneous Letters, vol. 42, p. 203.]

ORDNANCE OFFICE,
Washington, July 28, 1851.

SIR: By the inclosed letter from Bvt. Maj. Mordecai, I am advised of the instructions of the General-in-Chief in regard to the disposition of an invalid soldier. I regret that this department was not consulted before it was decided to give such instructions, because it might have given, if called upon, such information as would have shown that the arsenals, on account of public considerations, are not suitable places for the accommodation of invalid soldiers. The arsenals are the depositories of much public property, and have workshops where tools and materials are constantly exposed. The enlisted force at all of them is so small as to furnish but very limited means for the enforcement of discipline, which would seem to be particularly requisite for the control of men having no occupation. A large proportion of the employés at the arsenals are hired citizens, and the enlisted men are engaged, during the greater portion of their time, at work, either in the shops as mechanics or assistants, or in the laboratories and storehouses as artificers and laborers.

For these reasons it seems to me that the presence at an arsenal of any considerable number of men without employment would be injurious to the service of the arsenal; that it may interfere also with the safety of public property, and that these men cannot have there the restraints requisite for proper discipline. I wish it to be distinctly understood that no objection is made on account of any trouble it may occasion to accommodate and supply these men, or to keep the accounts thereof. That would be cheerfully done by this department or any of its officers. The objection is solely as to the effect on the discipline and public service of the arsenals and the safety of public property. It would not, probably, be much felt while the number of invalids to be accommodated was small, but would increase as more were sent, and would become serious in case of a large number.

I am, very respectfully, &c.,

H. K. CRAIG,
Colonel of Ordnance.

Bvt. Maj. Gen. R. JONES,
Adjutant-General, U. S. Army.

[1924 W. D., 1851.]

ORDNANCE OFFICE,
Washington, August 1, 1851.

SIR: I respectfully submit herewith a letter from the commanding officer of New York Arsenal, an ordnance post on Governor's Island, inclosing a correspondence with Bvt. Col. Gardner in relation to the proper construction of General Orders No. 40, of 1851.

It is quite clear to me that Colonel Gardner is mistaken in supposing that the general order was designed to place the arsenals and armories under the command of the officers of the line, or to require ordnance officers to make official reports to officers with whom, in the discharge of their appropriate duties, they have no official connection. Neither the armories or arsenals, or the civilians employed thereat, are at all under the control of any other than ordnance officers, except so far as regards the internal police and discipline of a post where they may be employed. The Ordnance Department, so far as regards its constructions and fabrications, and its fiscal affairs, and all its *appropriate* duties, has been placed by law under the immediate orders of the Secretary of War only. The senior officer of that department is charged with its superintendence and administration, "under the direction of the Secretary of War," and is stationed at the seat of government as a part of the personal staff of the Secretary. All reports from its officers are by regulation directed to be made to the Ordnance Office; and through it all information relative to its superintendence and administration is communicated to the War Department. The Secretary of War alone has authority, under the law, to regulate the operations and expenditures of the Ordnance Department, and in *time of peace* no commander of an army or garrison can order any supplies from its arsenals. So far as the order implies a control in the officers of the line over the Ordnance Department, I understand it to apply not to the arsenals and armories, which are subject to the direct command of the Secretary of War, but to refer to ordnance officers when assigned to duty in the staff of the Army as contemplated in the law of 1816.

I am, sir, very respectfully, your obedient servant,
WM. MAYNADIER,
Captain of Ordnance, in charge of Ordnance Department.

Hon. C. M. CONRAD,
Secretary of War.

[1st inclosure.]

NEW YORK ARSENAL,
July 30, 1851.

SIR: I have the honor to inclose herewith a copy of the correspondence between Colonel Gardner and myself on the subject of General Orders No. 40, which will explain itself without any comments of mine.

Very respectfully, your obedient servant,

G. H. TALCOTT,
Brevet Lieutenant-Colonel.

Col. H. K. CRAIG,
Ordnance Department, Washington.

[2d inclosure.]

NEW YORK ARSENAL,
July 28, 1851.

SIR: I have had the honor to receive your note of this morning, asking for a *sub-report* from me, to enable you to comply with General Orders No. 40, current series. That part of Governor's Island designated as the arsenal has, heretofore, been

deemed under the exclusive control of the Ordnance Department, and as entirely disconnected from and independent of the military post and troops of Fort Columbus as it would be were it miles off, except for mutual police regulations. The sub-report you wish, would be an exact copy of *my official report to the Colonel of Ordnance*, of men hired during the month of December last. Permit me to say I doubt if it would be quite proper for me to give you a copy without his sanction.

There certainly is not the slightest objection on my part individually, and, should you think proper, I will forward your note explaining your wishes to the Colonel of Ordnance.

With the greatest respect, your obedient servant,

G. H. TALCOTT,

Brevet Lieutenant-Colonel, Commanding.

Col. J. L. GARDNER,

Commanding Fort Columbus, Governor's Island.

[3d inclosure.]

HEADQUARTERS GOVERNOR'S ISLAND, N. Y.,

July 29, 1851.

SIR: On reconsidering General Orders No. 40, current series, received yesterday, to which I would recall your reflections, I have no doubt that I am, as commander of this post, to report to the division headquarters the number of civilians employed on the 31st December last as clerks, agents, &c., in the Ordnance, medical, and engineers department on this island, and must therefore look to you for the sub report of your department, on which my own is in part to be founded.

I have the honor to be, very respectfully, your obedient servant,

JOHN L. GARDNER,

Brevet Colonel, Commanding Post.

Lieut. Col. G. H. TALCOTT,

Ordnance Department, New York, N. Y.

[4th inclosure.]

HEADQUARTERS GOVERNOR'S ISLAND,

July 29, 1851.

SIR: The construction to be put on par. 1 of General Orders No. 40, as applicable to this island or post, turns obviously, as you think, on the extent of my command here, in relation to the objects of that order. If the arsenal under your control be "as entirely disconnected from and independent of the military post and troops of Fort Columbus as it would be were it miles off, except for mutual police regulations," then I must think with you, that the report required of me is to have no reference whatsoever to the civilians employed by you on 31st December last, nor will the similar report required for the 30th September next, nor shall I be required to note in my monthly returns hereafter the number of civilians employed by you, with their compensation.

But the expression "in each and all the several departments of the service" seems nevertheless to imply nothing less than I have supposed; and to settle all questions about it, I will thank you to forward this with my former note of this date, as you propose, to the chief of your department, that you may obtain a decision. You may not have remarked that General Orders No. 40 calls for a tabular report, specifying these five particulars: 1st, the services performed; 2d, the necessity for the employment of civilians; 3d, when first employed; 4th, the compensation allowed; and 5th, the authority therefor; and that the sub report I asked from you would embrace the same specialities.

I have the honor to be, very respectfully, your obedient servant,

JOHN L. GARDNER,

Brevet Colonel, Commanding Post.

Lieut. Col. G. H. TALCOTT,

Ordnance Department, New York Arsenal, Governor's Island.

[1st indorsement.]

AUGUST 2, 1851.

The order of the commanding officer of Fort Columbus was correct; Colonel Talcott is stationed at a "military post or station," and comes within the express words as well as the intention of the order.

C. M. CONRAD,

Secretary of War.

[2d indorsement.]

SEPTEMBER 2, 1851.

The General Order No. 40, current series, does not apply to the armories and arsenals of construction.

C. M. CONRAD,
Secretary of War.

[Letters to W. D., vol. 10, p. 150.]

ORDNANCE OFFICE,
Washington, August 4, 1851.

SIR: I have received from the officer commanding the Harper's Ferry Armory an inquiry as to the operation of General Orders No. 40 upon his armory, which is herewith respectfully submitted.

This inquiry, in connection with the correspondence submitted to you with my letter of the 1st instant, showing the construction which has been put upon the late General Orders (No. 40) by one of the commanding officers of the line, makes it proper that I should take the occasion to submit a brief report on the duties, organization, and regulations of the Ordnance Department. The business for which the Ordnance Department exists is the preparation and preservation of munitions of war. This preparation is in two ways—by fabrication, and by purchase. None of these duties are ordinarily or can advantageously be performed in connection with the troops of the line. The Ordnance Department is, therefore, by our laws, a separate corps, with establishments both for the fabrication and preservation of military stores, separate from the other military posts and garrisons. It has charge of the military wealth of the nation, of all the munitions of war which the nation accumulates in time of peace, and of all the money which it appropriates to the same objects. These munitions of war have not been provided and are not intended for the use of the Army alone. They constitute the armament of the nation, and a portion of them is annually applied to arming and equipping the militia of every State and Territory of the Union. They are the means which the government has laid up in store to place the nation in a warlike attitude, whenever circumstances may require it; as much a portion of the national means as the money in its Treasury, and, like it, committed to a particular custody provided by law. The corps would be equally necessary as now, and would doubtless exist with an organization similar to its present one, if the United States maintained no standing army in peace. The department, therefore, with its property and its fiscal operations, has been placed by our laws and regulations subject only to the orders of the Secretary of War. Such munitions of war as are required from time to time for the use of the troops are issued to them from the arsenals and depots, on requisitions examined, modified, and regulated “under the direction of the Secretary of War,” by the Chief of the Ordnance Department, who, in the performance of this part of his duty, is directed invariably to communicate with the General-in-Chief. When ordnance and ordnance stores are thus issued, they then come under the control of the officers of the line, and the custody of them, which, while in the arsenals, has been placed by law in the Ordnance Department, ceases. The case is similar to that of the clothing of the Army, which is provided by the Quartermaster's Department, and while in its stores at Philadelphia is under its exclusive control, and so remains until issued thence for the

use of the troops. Would it furnish any useful information to the Adjutant-General of the Army, or to the commander of the military department or division in which Philadelphia is located, to be told how many persons are employed in making that clothing and at what wages? Or are the files of either of their offices the proper depositories for such information? Can information be of any use to the department of military orders and correspondence, or to commanding officers of divisions or departments, as to how many forgers, finishers, welders, filers, or stockers are employed in making muskets, rifles, or pistols, or how many carriage-makers, smiths, turners, tanners, pyrotechnists, saddlers, and harness-makers are engaged in making or repairing gun-carriages, harness, accouterments, and ammunition? Such information can only mislead to erroneous conclusions. The officer who reduces the number of his hired men so low as to do little or no work and give himself no employment will show by his reports a less expenditure of money, and will probably get credit for *economy*, while he who has doubled his hired force and his expenditures, although, it may be, he has trebled the products of his manufacture, will be very likely to be animadverted upon as doubly more extravagant than by his former report. There are some few of the arsenals located for convenience at places where there are also posts of troops of the line; such are Fort Monroe Arsenal, New York Arsenal on Governor's Island, and Baton Rouge Arsenal. But it is not conceived that a particular location or a greater or less distance from such "posts" changes the character of these arsenals, or displaces them from the exclusive control under which the law has placed them. Has the commanding officer of troops at an unfinished fort, in the hands of the engineers, any control of its construction? Must the number of stonemasons, bricklayers, carpenters, and laborers employed by the engineer officer be reported to him monthly, with the amount of compensation allowed, in order to "be noted on the monthly post return," as required by the fourth paragraph of the General Orders (No. 40)? And if not, why report the mechanics and artificers employed in fabricating for the armament of that fort? The New York Arsenal, on Governor's Island, is just as distinct and separate from the command of Colonel Gardner, on the same island, as the Kennebec Arsenal, in Maine, or the Baton Rouge Arsenal, in Louisiana; so, also, of Fort Monroe and Baton Rouge Arsenals, in respect to the conterminous posts of the line of the Army. The Secretary of War directs ordnance officers to be placed upon the staff of the Army when their services are required with the troops. But he retains the direct, immediate, sole command of the department, its arsenals, armories, and depots, and of all its officers and agents who are not serving *with the troops*, whether in the field or at the garrisons. The officers of the line are permitted in time of war to make requisitions on the arsenals; but in time of peace special orders in the case, from the Secretary of War, are necessary. The laws and regulations which govern the Ordnance Department have taken care to be very explicit on this subject. The law of 1815, which organized the Ordnance Department, subjects it in time of peace to the orders of the Secretary of War only, and in war to the generals and field officers commanding, &c. The law of April 14, 1816, directs that ordnance officers may be assigned to duty on the staff of the Army, in like manner as engineers.

The act of 1821 reducing the Army merges the ordnance in the artillery, but provides for the discharge of ordnance duties by selection of officers from the artillery, who, while on the ordnance detail, "shall be subject only to the orders of the War Department." This experiment

of providing ordnance officers by detail from the artillery proved insufficient, and the law was again changed, and the separate corps as now organized was created by successive laws.

The tenth section of the act of 8th February, 1815, authorizes "the Colonel of the Ordnance Department, under the direction of the Secretary of the Department of War," to draw up a system of regulations for the government of the Ordnance Department, forms of returns, and reports, &c.

That system of regulations, under that direction, has been drawn up. The 1st and 2d articles provide for the superintendence and administration of the Ordnance Department and for the charge of *all* arsenals, depots and magazines and all property belonging to the Ordnance Department, not issued to the troops, and devolves that charge on ordnance officers, holding them strictly responsible.

Those regulations prescribe also all the returns and reports to be made, and contain a complete system of government for all the public establishments of the Ordnance Department.

They, as well as the laws, are respectfully referred to as giving more information on this subject than can be contained in the limits of a report like this.

The operations of the Ordnance Department, which are among the most important of those that pertain to the military service, are now directed by the Secretary of War. In this he is aided by the Chief of the Ordnance, in charge of the Ordnance Bureau in the War Department, from which reports and information on the minutest details of the service can be had daily. For consultation upon important matters the Ordnance Board has been established, and for final decision the General-in-Chief of the Army is present to afford the Secretary of War, in connection with the Ordnance Corps, all the aid which professional knowledge can suggest.

That the system has worked well, its results show. It is believed to be the general judgment of the Army that no department of the service has been better conducted. The improvements which it has introduced, since its last organization, in the various kinds of artillery and projectiles and small-arms have been important. Not only improved models, but a better fabrication and more economical methods have been effected. A very important part of these results is due to the personal attention they have received from the Secretary of War. It does not, therefore, appear that any part of the existing system as established by law and regulation needs a change. Any control of the ordnance establishments by the officers of the line, of whatever rank, whether the field officers of artillery or infantry commanding the adjacent posts, or the colonels commanding the departments, or the two brigadier-generals commanding the divisions, would introduce confusion and mischief. Any supervision which does not admit control would be unmilitary and idle, where not mischievous. I am, therefore, *clear* in the opinion that no officer of the line of the Army, except the General-in-Chief, should be permitted to interfere with the direct control which the Secretary of War holds of the Ordnance Department and its operations.

In compliance with the third paragraph of that order (No. 40) the Ordnance Bureau has reported to the Adjutant-General's Office. But the information, given as required, is in a very condensed and, therefore, perhaps, not a useful form. The information, in detail, is conveyed to this bureau in the monthly returns of hired men, and the monthly statements of work done and services performed.

These original returns can in all cases, when required, be submitted to

the Secretary of War. I beg leave, however, to submit whether the information is at all useful to the Adjutant-General, or has any relation to the duties of his office, and whether the Ordnance Bureau should not be relieved from the labor of furnishing it to his office. Undoubtedly it is information useful and necessary to the Department of War, and is always deposited in the appropriate bureau of that department. But the Adjutant-General's Office is not, in its connection with the Army, a bureau of the War Department; and if it were, is not the appropriate bureau for such records, and to multiply the records is laborious and expensive.

As a bureau of the War Department, in charge of an important branch of the military service, the Ordnance Office is always prepared and is always happy to furnish to the General-in-Chief information of all its affairs. But in such cases the exhibition of its records to the General is much more convenient and less expensive and laborious than abstracts and reports to the chief of his staff, the Adjutant-General of the Army.

Regular reports of the officers and enlisted men of ordnance are made by this bureau to the Adjutant-General's Office, as the office where the complete records of the "personnel" of the Army are kept. But no reports have ever been made in regard to any of the fiscal affairs of the department, either in respect to the hired labor it employs or its purchases of materials or its fabrications, nor any account given to that office of the expenditure of any of the ordnance appropriations. Any information which may be required on these heads, at the Headquarters of the Army, can conveniently and will cheerfully and fully be communicated to the General-in-Chief from the records in the bureau, as it may be at any time desired by him. But this office, it is respectfully suggested, is the only proper depository for records containing such information, and should be relieved from making any reports to the Adjutant-General except as regards its military *personnel* and communications concerning issues to troops, to him, as the staff officer of the General-in-Chief.

In the foregoing my object has not been to claim any exemption whatever for the Ordnance Department from the *strictest* supervision and the most rigid accountability. I simply desire to state what I regard as the legitimate and proper control of the department and its armories and arsenals, both in peace and in war, and I am confident that no interference with *such control* will be permitted by orders.

I am, very respectfully, your very obedient servant,

WM. MAYNADIER,

Captain of Ordnance, in charge of Ordnance Department.

Hon. C. M. CONRAD,

Secretary of War.

NOTE.—For decision in the above case see indorsement of the Adjutant-General on letter of Colonel of Ordnance of December 5, 1851, *post*.

[Miscellaneous Letters, vol. 42, p. 238.]

ORDNANCE OFFICE,
Washington, August 13, 1851.

SIR: In answer to your letter of this date, asking for a statement giving the history of the introduction of Colt's patent revolving pistols into the United States service, their use in Mexico, and against the Indians, and the opinion of ordnance officers as found in their reports on

file in this office, and in compliance with the instructions of the Secretary of War to furnish you any of the information sought that the records of the Ordnance Bureau may supply, I have to state:

This department has ordered from Mr. Colt, from time to time, since January, 1847, seven thousand of his pistols. The first ordered were for the Texan Rangers, under Col. Jack Hays, and for Captain Walker's company of mounted riflemen, both serving in Mexico. These did not turn out well, owing mainly, if not entirely, to defective material used in their fabrication, which caused many of them to burst in use and created a prejudice against them. The Colt's pistols since made have been modified in some respects from the original pattern, and much improved in the manufacture, particularly in the materials used. Their use by the United States troops, dragoons, and mounted riflemen, has produced no complaint, except as to the powder flasks furnished with them, which has been corrected by the use of cartridges instead of the separate powder and ball, as in the first instance. The practical experience of such officers as have seen them used by troops in active service is in favor of the same entirely, others only to their being furnished to a limited extent and to picked men.

In conformity to a resolution of the United States Senate, a Board of Ordnance Officers was assembled at Washington Arsenal, on the 13th November last, to make trials with repeating pistols. Inventors of repeating arms were invited to attend, with samples of their arms for trial. Four kinds of repeating pistols were presented, viz, Colt's, Leavitt's, Warner's, and Perry's. After examining and trying these different pistols, the Board expressed the opinion that "Colt's revolving pistol is better adapted to the service of mounted troops than any other repeating pistol offered to their notice, and in many cases may be advantageously substituted for the present cavalry pistol."

I am, respectfully, &c.,

WM. MAYNADIER,

Captain of Ordnance, in charge of Ordnance Department.

EDW'D N. DICKERSON, Esq.,

Counsel for S. Colt, Astor House, New York.

[Letters to Ordnance Officers, vol. 12, p. 269.]

ORDNANCE OFFICE,

Washington, August 18, 1851.

SIR: I am informed that it is your intention to take with you to Allegheny Arsenal the hired clerk from Saint Louis Arsenal; that this will displace a worthy and efficient man, now employed in that capacity at Allegheny, and that in consequence thereof, Major Harding intends to take him to Watertown Arsenal, which will again displace a long tried and faithful man, who is dependent on the situation he holds for his support, and who deserves consideration for the services he has rendered to his country. I understand that both these clerks are considered by their commanding officers competent and trustworthy men. I fully recognize and admit the principle that commanding officers of arsenals should be permitted to exercise their own discretion as to the particular *persons* to be employed to do the work of their posts. As a general rule that discretion ought to be allowed and must be for the interests of the service, but without departing from that principle, I

deem it proper to interpose in this case, because it appears to me that no benefit to the public service is to be anticipated from the proposed changes, while they are likely to cause much personal inconvenience, and to do injustice to good men. I am quite sure that you are far from desiring or intending any such thing, and that when this result is shown to you, you will abandon the contemplated change, as I now request, for the present at least. If, after a trial of the clerk at Allegheny Arsenal, you should find any cause for discharging him, from incompetency or otherwise, there will be no objection to it, and you can then fill the place by such selection as you may think proper.

I am, respectfully, your obedient servant,

H. K. CRAIG,
Colonel of Ordnance.

Maj. WM. H. BELL,
Saint Louis Arsenal.

[Letters to Ordnance Officers, vol. 12, p. 277.]

CIRCULAR.

ORDNANCE OFFICE,
Washington, August 23, 1851.

SIR: Some misapprehension seeming to exist in regard to the circular of the 15th April last, it is deemed proper to state further, that the liabilities therein referred to are incurred when the articles or services stated in the abstract are purchased or rendered. The expenditures, or a portion of them, in an abstract pertaining to any year (say 1850-'51), may have been payments for liabilities incurred by making purchases or receiving services in years prior to that year; and the object of the circular is to ascertain the fiscal year in which the liability was incurred, regardless of the time when the expenditure was made. The indorsement on the abstract will, therefore, show (as indicated by the circular of 15th of April), the year in which were incurred the liabilities for which the expenditures *included in the abstract* were made.

Respectfully, your obedient servant,

H. K. CRAIG,
Colonel of Ordnance.

Copy of the above to all officers commanding ordnance establishments.

[266 H., 1851.]

FORT MONROE ARSENAL,
September 6, 1851.

SIR: The Secretary of War, having granted me permission to bring before him for further consideration my claim to be assigned to duty as a brevet major, as the commander of Harper's Ferry Armory, I have to request you will lay this letter before him, with my letters to you of 26th July, 31st July, and 2nd of August last.

The fact that this armory, one of the largest establishments in charge of the Ordnance Department, has always been commanded by a major of the corps, makes it equal to the command of a major. This is a case, such as is provided for by the Regulations of the Army. Paragraph 21, General

Regulations of the Army (edition 1847), states that, except on detachments "brevet rank cannot be exercised except by assignment."

The regulations for the Pay Department embodied in the General Regulations (edition 1841), paragraph 1225, reads: "Officers who have brevet commissions, shall be entitled to receive their brevet pay and emoluments when on duty and having a command according to their rank, as follows:

* * * * *

"SEC. 7. A brevet officer when assigned by the special order of the Secretary of War to a particular duty and command, *although such command be not in the line*; provided his brevet allowances are recognized in the order of assignment."

I trust, therefore, the Secretary will not except my case from the custom of the service.

I remain very respectfully, your obedient servant,

BENJ. HUGER,

Bvt. Colonel, Captain of Ordnance.

Col. H. K. CRAIG,

Ordnance Department.

[Indorsement.]

ORDNANCE OFFICE,

September 10, 1851.

Respectfully submitted to the Secretary of War, as requested by Bvt. Colonel Huger. I think the assignment requested by him *equitable*, in consideration of the importance and extent of the duties he will have to perform at Harper's Ferry Armory.

H. K. CRAIG,

Colonel Ordnance.

[First inclosure.]

FORT MONROE ARSENAL,

July 26, 1851.

SIR: I have received your instructions of the 24th instant, and shall immediately make due preparations to turn over the command of this arsenal to Major Ramsey, when he arrives.

As regards my assignment to the command of the "Harper's Ferry Armory," as it is one of the largest establishments in charge of the Ordnance Department, and has always been assigned to a field officer, I do not wish to take it in preference to my seniors, Majors Bell and Harding, and Bvt. Major Mordecai, all of whom are entitled to that command before myself; if, however, the public interest requires that I should be selected for that post, I respectfully request you will lay my claim before the Secretary of War, to be assigned to duty by brevet according to the command.

I am, Colonel, your obedient servant,

BENJ. HUGER,

Bvt. Colonel, Captain of Ordnance.

Col. H. K. CRAIG,

Ordnance Department.

[Second inclosure.]

FORT MONROE ARSENAL,

July 31, 1851.

SIR: In reply to your letter of the 29th instant, I beg leave to state that I did not intend to ask to be relieved from the assignment to Harper's Ferry Armory, but if, as is now stated in your letter of the 29th instant, "that my services at Harper's Ferry Armory cannot be dispensed with," I intended to claim, as it is one of the largest establishments in charge of the Ordnance Department, and has always been commanded

by a field officer, that my being selected for this command does put me on duty as a field officer—such is the custom of service in like cases. The regulations require, before an officer can exercise a brevet rank in this case, that he should be specially assigned. I, therefore, request you will at your earliest convenience explain the case to the Secretary of War, and ask his authority to give the necessary order.

I remain, very respectfully, your obedient servant,

BENJ. HUGER,
Bvt. Colonel, Captain of Ordnance.

Col. H. K. CRAIG,
Ordnance Department.

[Third inclosure.]

FORT MONROE ARSENAL,
August 2, 1851.

SIR: I am in receipt of the letter from your office dated July 31, 1851. I beg leave most respectfully to express my dissent to the inference made by the Secretary of War, that his decision of April 29, 1851, on the application of Lieut. Colonel Ripley, is "applicable to my case." That decision concludes thus, "and though the station (Springfield Armory) is an important one, the portion of it that may be military does not constitute a command" according to the rank of lieutenant-colonel. This decision does not say that it does not constitute the command of a major. The fact that officers having the rank of major have *always* been assigned to the command of the national armories is conclusive that they have always been the command of a major. I, therefore, do claim that the order assigning me to duty at one of these armories does give me the command of a major, and it is but justice to me that my rank should be duly recognized.

I write this that my opinion may be on record in your office, and for your own information, to whom as the chief of my department, I must look for support and assistance when my claims are just.

Very respectfully, your obedient servant,

BENJ. HUGER,
Bvt. Colonel, Captain of Ordnance.

Col. H. K. CRAIG,
Ordnance Department.

WAR DEPARTMENT,
Washington, September 13, 1851.

SIR: The Colonel of Ordnance has submitted to me your letters of the 6th September and previous dates, in which you ask to be assigned to the command of Harper's Ferry with your brevet rank of major. In reply I beg leave to state that, on an application made in April last by Brevet Lieutenant-Colonel Ripley to be recognized as in command of Springfield Armory according to his brevet rank, I decided that, inasmuch as the persons employed at the armory were civilians, they did not constitute a "*command*" according to the rank of lieutenant-colonel, and therefore, as the law now stands, I had no power to assign him to command at the armory according to his brevet rank.

This decision applies to your case, and must prevent a compliance with your request, until the law on this subject be changed.

Very respectfully, your obedient servant,

C. M. CONRAD,
Secretary of War.

Bvt. Col. B. HUGER,
Fort Monroe Arsenal, Old Point Comfort, Virginia.

ORDNANCE OFFICE,
Washington, September 16, 1851.

SIR : On being relieved from the command of Watervliet Arsenal, you will proceed to make the inspections required by the fifteenth article of Ordnance Regulations, resuming this duty where it was suspended by the recent change in the office of inspector.

The arsenals and armories remaining to be inspected are those at Old Point Comfort and Harper's Ferry, Va., Pikesville, Md., Governor's Island, Watervliet, and Rome, N. Y., Watertown, Mass., Augusta, Me., and Vergennes, Vt.

You will carefully and minutely inspect each of these posts, taking them in the order in which they come in the usual route of travel. In making your inspections you will attend particularly to the several points of duty enjoined by articles 15, 16, and 100, Ordnance Regulations. In addition to the inventory required by the last article to be forwarded to this office, you will send a separate list of condemned stores, prepared according to Form No. 10.

Besides the general duties required by the regulations, there are other matters of which it is important that this department should be well informed through your inspection reports. Among these the following are mentioned, viz : The necessity for all the objects which the commanding officers intend to include in their annual estimates; your opinion of their plans for new buildings, or for repairing, altering, or enlarging those already erected, and as to the proper sites for any additional ones that may be necessary. Whether any *system* of improvement, in the way of additional buildings, machinery, fences, walls or grounds, at each arsenal, armory or depot, should be adopted. What is the relative importance of the different proposed improvements at the same arsenal; and in what order should they be undertaken? The same for the different ordnance posts in relation to each other. What improvements appear essential to be undertaken at once, and what can be postponed with the least inconvenience; and any other information on this subject, which you may think useful to enable the department to revise and modify the annual estimates from the arsenals, so as to combine a proper degree of economy with the most efficient system of operations. Whether the enlistments and musters are made as required by regulations. (See articles 61 and 62.) Whether any changes are advisable at any post, in the number or grades of enlisted men. Whether the hired force is necessarily and usefully employed, and if any reduction or increase in their numbers or wages is advisable. At what arsenals does it appear to be necessary to employ hired *master-workmen and clerks*, and where may enlisted men be properly employed in these capacities?

Whether the number of public animals (horses, oxen or mules) kept at any post is such only as the public service requires, and whether any reduction or increase should be made. Should there be any general rule adopted as to the issue of uniform clothing to the enlisted men of ordnance, or should it be left to the discretion of the different commanding officers? You may not be able to form a conclusive opinion on this subject, until you shall have inspected all the arsenals.

Whether the hired and enlisted men are properly employed, and all property pertaining to the department is used exclusively for public purposes. (See article 60.) Whether the ordnance and ordnance stores are neatly arranged in store, and so kept as to secure their safety and preservation. (See Ordnance Manual on this subject.) Whether the

books and papers required by the regulations are properly kept at each post. (See articles 150 and 151.)

In addition to the foregoing specified subjects, it is, of course, expected that you will examine and report upon all matters which you may deem of interest, connected with the good management and the present and prospective wants of the several posts you may visit, with all of which it is essential that you should take full time to make yourself acquainted.

Respectfully, your obedient servant,

H. K. CRAIG,
Colonel of Ordnance.

Lieut. Col. R. L. BAKER,
Inspector of Armouries and Arsenals, Watervliet Arsenal.

[247 W. D., 1851.]

ORDNANCE OFFICE,
Washington, D. C., September 19, 1851.

SIR: I have the honor to submit for your consideration a letter from Brevet Major Mordecai, of the Ordnance Department, offering suggestions for an interchange of small-arms of the patterns adopted for our service, with certain foreign governments. The idea I think a good one, and if carried out, will be useful to us in exhibiting the style of foreign work, and in showing foreigners that our people can not only make good use of fire-arms, but fabricate them.

With much respect, your obedient servant,

H. K. CRAIG,
Colonel of Ordnance.

The Hon. C. M. CONRAD,
Secretary of War.

[Inclosure.]

WASHINGTON ARSENAL,
September 15, 1851.

COLONEL: I have several times suggested to foreign officers who have visited this arsenal, that it would be desirable and interesting to both parties if we could increase our collections of foreign arms and equipments by mutual exchanges. They have all concurred in the advantages of such an exchange and have expressed a belief that the measure would be readily agreed to by their respective governments. The subject has been recently brought again to my notice by a visit from Captain Mogens, of the Danish army, who, on a former occasion, interested himself in the plan; and having mentioned the matter informally to officers of the government at home, he found that it was favorably received. I am therefore induced to submit the subject to your consideration and, if you approve of the suggestion, to ask that you will recommend the measure to the notice of our government. The exchanges to which I refer are especially of small-arms, side arms, and accouterments, for infantry, artillery, cavalry, and riflemen. You are probably aware that we have already made such an exchange with the French Government, at the request of the Duc de Montpensier, late master general of the artillery.

Very respectfully, your obedient servant,

A. MORDECAI,
Captain of Ordnance, Brevet Major, U. S. A.

To Col. H. K. CRAIG,
Ordnance Department.

[Indorsement.]

The Secretary declines to authorize the exchanges.

JOHN POTTS,
Chief Clerk War Department.

NOVEMBER 3, 1851.

[Miscellaneous letters, vol. 42, p. 324.]

Indorsement on W. R. Shoemaker's letter dated at Camp Union, N. Mex., September 3, 1851; states that commanding officer of Fort Union claims command over ordnance detachment; and asks that instructions be given on the subject, &c.

ORDNANCE OFFICE,
October 14, 1851.

This letter is respectfully referred to the headquarters of the Army. The question presented in it is, in my opinion, easily settled. The military storekeeper in charge of the ordnance department established in New Mexico for supplying and repairing the arms, equipments, and other ordnance stores for the use of the troops in New Mexico, is a part of the staff of the commanding officer of that military department. As such, he is under that officer's orders; and the ordnance supplies in his charge must be issued on requisitions approved by the commander of the department (see General Orders, No. 10, Headquarters of the Army, July 20, 1849). That order being requisite to confer the authority to direct issues on the commander of the department, such authority, of course, does not exist in any other officer.

While at a military post, the ordnance storekeeper may be prohibited from erecting any building or doing any work for ordnance purposes inconsistent, in the opinion of its commanding officer, with the proper police, discipline, or defense of the post. In all such matters he must be controlled by the commanding officer of the post for the time being. The management of the business peculiar to his own department, such as the supervision of his workshops and the assignment of work to the men employed by him, should be under his control, subject only to the commanding officer of the military department. It is taken for granted that the storekeeper will be furnished with all proper facilities and assistance in the discharge of his duties, while he is to make no use of any public ground or building at the post, or to grant to those in his employment any privileges inconsistent with the established rules of discipline at the post where he may be stationed. At the same time, no other officer but the commander of the department should exercise any control over the enlisted artificers, armorers, or laborers; who should be employed in their appropriate duties only.

I submit this view of the case, in the hope that it may be concurred in at Army headquarters, and that the instructions to the officers of the line, and those from this office to the Ordnance Office, may be of similar import.

H. K. CRAIG,
Colonel of Ordnance.

To Bvt. Maj. Gen. R. JONES,
Adjutant-General, U. S. Army.

[Ex. Doc., 1st session 32d Congress, vol. 2, Part 1, p. 444.]

ORDNANCE OFFICE,
Washington, October 28, 1851.

SIR: The following report of the principal operations of the Ordnance Department, during the past fiscal year, is respectfully submitted. I have followed the customary arrangement of subjects, under different heads, introducing, in the appropriate places, besides a statement of the year's operations, such remarks and suggestions as I have deemed proper

for explanation, or for the better regulation of any part of the business of the department in future.

FUNDS.

Amount, as per last year's report, undrawn from the Treasury on the 1st July, 1850.....	\$739,238 51
In the hands of disbursing officers, at the same date.....	99,114 58
Amount of appropriations for the fiscal year 1850-'51, including the fixed annual appropriation for arming and equipping the militia.....	1,102,740 00
Received during the year, from damages to arms in the hands of troops, chargeable to them, and from all other sources not before mentioned.....	12,264 62
	<hr/> 1,953,357 71 <hr/>
Amount of expenditures during the year.....	\$1,133,047 14
In hands of disbursing officers, 30th June, 1851.....	110,181 76
Remaining in Treasury undrawn, same date.....	710,128 81
	<hr/> 1,953,357 71 <hr/>

The expenditures, under each appropriation, are stated, as they come in order in reporting the operations and principal products in each branch of business. All the disbursing officers of this department have rendered their accounts, as prescribed by regulations, and these accounts have been transmitted to the proper accounting officers for settlement, after undergoing an examination in this office. The estimates for the next year have been prepared with care. They contemplate a reduced extent of operations at the armories and principal arsenals, and the ordinary supplies for a military peace establishment. Their total amount is less than the ordinary annual appropriations for many years past. The objects are stated in detail in the remarks on each item annexed thereto.

ARMAMENT OF FORTIFICATIONS.

The operations of the department in this branch of the service consist in the procurement and preparation of armament for the forts to the extent that the means available therefor would permit. The work done includes the inspection and proof of cannon at the foundries; the manufacture of sea-coast and garrison carriages, with their implements and equipments; the receipt, inspection, and storage of gun-carriage timber, and other materials required for the fabrication of these carriages, the preparation and furnishing of the regular supplies of ammunition for the forts, and such repairs of their armaments as were necessary. The principal articles obtained by purchase and fabrication at the arsenals are as follows, viz: 90 thirty-two pounder iron guns; 76 thirty-two pounder barbette carriages, complete; 5 twenty-four pounder barbette carriages, complete; 31 thirty-two pounder barbette chassis; 3 twenty-four pounder upper barbette carriages; 47 twenty-four pounder flank howitzer chassis; 32 pent-houses; 10,638 cubic feet of timber for sea-coast carriages.

The expenditures from the appropriation for armament of fortifications, during the year, amount to \$73,913. Arrangements have been made for procuring thirty additional cannon and an additional supply of carriage timber—which have not yet been delivered. Payment for them when delivered will nearly absorb the remaining balance of the appropriation; and there having been no appropriation made for this object during the present fiscal year, the expenditures will necessarily be much curtailed. The balance of former appropriations, the only available means, will be applied, as far as they will go, to the preservation of the armaments on hand and to keeping up work on a small scale, so as not

to lose entirely the benefit of the machinery, tools, and shops already provided. Although the designation of this appropriation seems to connect it entirely with the system of fortifications, and the work under it has been carried on in reference to that system, it is by no means dependent on it; and the providing of heavy artillery, with its appropriate carriages, ammunition and equipments, will not be the less necessary for the defense of our harbors and seacoast, even if the system of fortifications should not be prosecuted to completion. On the contrary, if permanent fortifications be dispensed with, resort must be had to temporary batteries thrown up, as occasion may require, to guard and protect the approaches to our cities on the seaboard, unless it be determined, which is not to be supposed, to leave all points open to attack, and make no preparation for protection or defense. These batteries will require the same kind of armament as it is intended to provide from the appropriation for "armament of fortifications," and to a far greater amount, without being as effective for attack or defense. Whatever substitute it may turn out to be the policy of the government to make for the system of fortifications (and no substitute will in my judgment answer the same purpose), the use of artillery certainly cannot be dispensed with; and so far as the quantity of artillery is concerned, less will certainly be requisite with permanent fortifications than without them. It does not therefore follow, as seems to have been supposed, that because no means are provided for carrying on the system of fortifications, it is useless to appropriate for the armament; but the reverse is true; the fewer points that are fortified the greater the need of armament. Although neither forts nor guns may ever be brought into actual use in *war*, it by no means follows that it is therefore useless to provide them, or that expenditures on such account are wasteful; although they may never *repel* an attack, they may prevent one.

ORDNANCE, ORDNANCE STORES, AND SUPPLIES.

The operations under this head during the year have included the objects for which the appropriation was made, viz, the preparation and furnishing of ordnance supplies of all descriptions for the troops in the United States service, the alteration of flint-lock arms to percussion, experiments in artillery and on gun-metal, and repairs of siege and field artillery.

The principal articles which have been procured by purchase and by fabrication at the arsenals are the following, viz: 6 12-pounder bronze guns; 532-pounder bronze howitzers; 1 12-pounder bronze howitzer; 24 12-pounder bronze mounted howitzers; 16-pounder iron gun; 20 12-pounder carriages; 20 6-pounder carriages; 45 12-pounder howitzer prairie carriages; 5 mortar beds; 7 caissons; 1,500 percussion rifles; 980 cavalry sabers; 452 cannon locks altered; 200 bayonet scabbards; 6,337 waist and pouch belts; 2,345 rifle pouches; 1,000 carbine swivels; 994 cavalry saber belts; 60 carbine slings; 700 rifle cartridge boxes; 260 non-commissioned officers' and artillery sword belts; 360 sword knots; 500 gun slings; 270,500 percussion caps for Colt's pistols; 30,000 Maynard's primers; 1,486 rounds of field artillery ammunition; 57,925 friction tubes for cannon; 393,304 cartridges for small arms; 100 signal rockets; 8,179 cubic feet of field carriage timber; 101,037 flint-lock small arms have been altered to percussion, of which 96,871 are muskets, and 4,166 pistols; and 988 Colt's revolving pistols ordered last year have been inspected, received, and paid for from the special appropriation for that object.

The expenditures from this appropriation during the year amount to \$230,015.36.

The arms, ammunition, and other ordnance supplies furnished to the United States troops, during the year ended 30th June, 1851, are shown in the statement hereto annexed, marked C.

NATIONAL ARMORIES.

The expenditures at the national armories during the fiscal year have been as follows, viz :

	Harper's Ferry.	Springfield.	Total.
For the manufacture of arms, appendages, tools, &c., and purchase of materials for the same.....	\$175,641 25	\$184,202 80	\$359,844 05
For repairs, improvements, and new machinery, including buildings, dams, &c.....	62,399 44	21,028 16	83,427 60
Total.....	238,040 69	205,230 96	443,271 65

The reports hereto annexed from the commanding officers of these armories exhibit in detail the chief operations at each, and are referred to for particular information in this respect. They show the following products: At Harper's Ferry there have been fabricated 11,100 percussion muskets and 3,050 percussion rifles, with 32,712 appendages for the same, consisting of extra cones, spring vises, wipers, screw-drivers, ball screws, and bullet moulds; 53,665 assorted components for repairs of arms have been made and supplied to other posts, and 124,945 hammers, cones, and screw-drivers, for altering flint-lock arms to percussion, have been made. Besides these a quantity of new machinery has been made, and of old improved, and several new buildings have been completed. The manufactures at Springfield Armory include 21,000 percussion muskets and 2,000 cavalry musketoons; 57,272 flint-lock muskets have been altered to percussion, and 255,347 cones, hammers, and screw-drivers, for the alteration of muskets, have been made. Some new machinery has also been completed, and other machines have been partly made. The cost of the finished musket at Springfield Armory during the past year was \$8.76; at Harper's Ferry Armory the cost of the musket was \$9.21, and that of the rifle \$10.62. These prices show a less cost than for any preceding year. The great reduction in the cost of arms at the national armories, which has steadily progressed since 1841, with no falling off, but rather an improvement in quality, is creditable to the officers in charge of these establishments. They are the results of unremitting attention to their duties. The number of finished muskets in the arsenals and armories on the 30th June, the end of the fiscal year, was about 500,000—of which about 160,000 were new percussion, about 271,000 altered from flint to percussion, and about 87,000 flint-lock. The number of percussion rifles at the same time was about 24,000, and of flint-lock rifles about 7,000—in all 41,000; of percussion pistols about 8,700, of altered pistols about 4,150, and of flint-lock pistols about 11,500—in all about 24,000. In consideration of this stock of small-arms I have deemed it proper to reduce the amount of the estimate for the manufacture of arms much below the ordinary annual appropriations for this object. It cannot be expected, however, that they will be made at as little cost for each arm when few are manufactured as where the operations are on a larger scale. The use of

machinery, which enters largely into this manufacture, will be nearly the same for a small as a large quantity, and the reduction in the cost of supervision, inspection, and other standing expenses necessary for keeping up a manufacturing establishment, will be but in small proportion to the reduced scale of manufacture. The greater economy of manufacturing on a large than on a small scale is, however, a fact too well known and generally admitted to require any argument to prove it. Although the supply of arms on hand may appear large, I am of opinion that it should be kept up and increased by manufacturing more annually than is requisite for ordinary consumption. With the vast extent of territory occupied by this nation, its military supplies, to be available in an emergency, must be divided into many portions and distributed throughout the various parts of the country; otherwise, although there may be in the aggregate more than enough to supply any military force that may be brought into the field at one time, it may happen that there will be no supplies at or near the very point where they are wanted, and none to be had without great delay in transporting them thither.

When the extent of our territory and its rapidly increasing population are considered, as also the equal right of every part to the use of and ready access to its share of the means provided by the general government for the defense of the whole, a stock of one million of arms will be found to be by no means an extravagant provision. They may never be required for use, and it will probably be fortunate for the country if they never are; but the very existence of ample means to meet any such emergency is one of the most effectual ways to prevent its occurrence. Moreover, the money to be expended for the purpose is not lost; it is merely converted into national property in another shape—property of more real value to the nation than money. That can be raised at any time; but an emergency, that might find the country unarmed or badly armed, could not be met by means of money only, and might involve a loss of national reputation—a loss not to be measured by or compared with money. With its merely nominal military force the strength of this country for warlike purposes, whether of offense or defense, consists in its military arsenals, filled with the products of the ingenuity and skill of its own artisans. The means provided for increasing that strength are, at the same time, applied to give employment to these artisans, and to foster and support that species of mechanical skill and ingenuity which is chiefly, and almost exclusively, applied to the construction of articles requisite for national purposes. It is a mistake to regard such expenditures as *Army* expenditures; not a tithe of them is required or intended for the *Army* proper; they are to provide the means of making the nation an army whenever occasion may require it; and the more perfect, ample, and complete those means are, the less likely is that occasion to happen.

ARMING AND EQUIPPING THE MILITIA.

The law of 1808, for “arming and equipping the whole body of the militia,” makes a standing appropriation from which are defrayed the expenses of procuring and delivering annually to the several States and Territories, on requisitions from the proper authority, such arms and equipments of the prescribed patterns as are due. The quota of each is determined at this office, and apportioned, every year, according to the militia returns made to the Adjutant-General of the Army. The statement hereto annexed, marked A, shows the apportionment thus made

for the present year. It will be seen from it that some of the States have not made returns for many years, and that from some of them no returns have yet been received. As these returns are the only data for determining the quota of each State, these States receive arms only in proportion to the number of militia last returned; giving none to some, and less to others than the actual number of their militia, if regularly returned, would probably entitle them to. Moreover, the method of arriving at the aggregate militia force is not uniform in the several States. The actual issues, therefore, do not give, as the third section of the act of April 23, 1808, prescribes, "each State and Territory, respectively, in proportion to the number of effectual militia in each"; nor is it probable, judging from past experience, that sufficient regularity and uniformity in the returns to apportion the supplies as the law prescribes can be attained. It is, therefore, suggested and recommended as a better method of apportioning the arms and equipments to the several States and Territories, that the annual quota of each be according to population by the latest census, or according to representation in Congress. To effect this will require legislation. At the same time it might be thought worthy of consideration whether some provision should not be made for supplying the new States which have not participated in the issues heretofore made under the law of 1808, and whose military supplies furnished by the general government are far behind those of the other States in proportion to their militia force.

The expenditures during the year from the appropriation for arming and equipping the militia amount to \$202,671.17. The principal articles obtained on this account, by purchase and fabrication at the arsenals, are as follows, viz: 6 12-pounder bronze guns; 22 6-pounder bronze guns; 3 32-pounder bronze howitzers; 10 12-pounder bronze howitzers; 22 6-pounder carriages; 2 caissons; 4,560 percussion rifles; 4,000 percussion pistols; 500 carbines; 510 cavalry sabers; 611 rifle pouches; 444 pouch belts; 902 cavalry saber belts; 490 sword knots; 400 carbine slings; 250 carbine swivels; 500 waist belts; 3,000 copper powder flasks; 4,092 cap pouches; 2,057 cubic feet of timber for field-carriages.

The quantity and kind of arms and equipment furnished for the militia during the year are shown in the annexed statement, marked B.

ARSENALS AND DEPOTS.

The only change in these during the year has been the establishment of an ordnance depot at Benicia, Cal., and the removal of the depot in New Mexico from Santa Fé to the Moro. Both these depots are provided with good supplies of ordnance stores, and with the means of repairing arms and equipments. A force of good enlisted mechanics and artificers has been assigned to each, so as to avoid the heavy expense of hiring workmen in those countries. Whether it will be possible to retain them in the service, and to prevent desertion, where the high wages commanded by persons of their trades and skill offer so many inducements, remains to be seen. Every precaution has been taken in enlisting the men, and by fully informing them before enlistment of what was expected of them, and of their obligation, to secure their services for the full term of their engagement.

There are, in my opinion, too many arsenals. Some of them now kept up are useless for military purposes, and their maintenance is a source of constant expense. They should be disposed of under the act of March 3, 1819.

Two of them, the arsenal at Fort Monroe, Virginia, and the arsenal at

Mount Vernon, Ala., are out of position and should be removed; the first to the point of land at the mouth of James River, or some other point on Hampton Roads; the other to the vicinity of Pensacola. All tools, machinery, and other useful articles not immovable should be transferred to the new sites, and suitable buildings there erected, and the lands, buildings, and fixtures of the abandoned arsenals properly disposed of.

Permanent arsenals should be established in Texas and New Mexico to replace the temporary depots at San Antonio and Santa Fé; the latter lately broken up and removed to the Moro by order of the commander of the Ninth Military Department. The proper site for that in Texas is at or near Austin; for that in New Mexico, probably the vicinity of Albuquerque, or some other point on the Rio Grande del Norte, would be preferable to Santa Fé or the Moro. A further examination, however, should be made, and the opinions of officers acquainted with the country should be had before deciding on the location. In establishing and building these arsenals there should be a special law and an appropriation, according to the plans and estimate submitted by this office on the 7th of January last, with the proper modification in regard to the site for the arsenal in Texas.

All arms and other ordnance stores for the land service not in use by the Army are kept at the arsenals and depots, and so distributed among them as it is thought will best secure their safety, and at the same time most conveniently meet the demands for them, so far as they can be foreseen. Besides the quarterly returns of this property, required for the purpose of accountability, an annual inventory from each arsenal is furnished to and filed in this office, including besides the munitions on hand, the public lands, buildings, and other improvements. These inventories show each article that has been received at any arsenal during the year and how obtained, each article that has been taken therefrom and how disposed of, and the quantity and condition of each article remaining on hand and its money valuation. The inventories for the year ending 30th June, 1851, show the aggregate valuation of all property in charge of this department to be about eighteen and a half millions of dollars.

The number of enlisted men of ordnance has been reduced during the year from five hundred to two hundred and fifty. This reduction leaves barely enough for the service of the arsenals.

The expenditures from the appropriation for arsenals during the year amount to \$72,924.50. The work done is that which was specially designated in the estimates on which the appropriation was based. It includes repairs and preservation of public buildings and sites, the erection of new and additions to old buildings, and all improvements of a permanent character. The reports of the commanding officers of arsenals, hereto annexed, give a detailed account of this work and other principal operations at each.

I am, sir, very respectfully, your obedient servant,

H. K. CRAIG,
Colonel of Ordnance.

To Hon. C. M. CONRAD,
Secretary of War.

[Miscellaneous Letters, vol. 42, p. 347.]

Indorsement on Bvt. Brig. Gen. James Bankhead's letter, dated Headquarters, Fort Monroe, October 30, 1851, referred to this office by the Adjutant-General for report, in reference to furnishing certain ordnance and ordnance stores for the instruction of the troops at his post.

ORDNANCE OFFICE,
November 6, 1851.

This department will most cheerfully supply any means in its possession to promote the instruction of the troops in the use of their armament. It is, therefore, recommended that General Bankhead's request may be complied with, and that the free use of the articles he mentions may be granted to him, to aid in the course of instruction he has commenced. I prefer this to *turning over* the property, because that course would unnecessarily swell the post ordnance return and increase the accountability of the commanding officer of the post; whilst the proper economy of the service would be better subserved by leaving the articles, for purposes of accountability, where they are. Proper arrangements for the due care of the articles while in use for instruction can readily be made by the commanding officers of the fort and of the arsenal acting in conjunction; and such concurrent arrangement having no object but the interest of the public service, for the instruction of the troops on one hand and the preservation and proper accountability of public property on the other, it appears only necessary to suggest it to secure the harmonious action of both officers in its execution.

H. K. CRAIG,
Colonel of Ordnance.

Gen. R. JONES,
Adjutant-General, U. S. A.

[4 W. D., 1852.]

ORDNANCE OFFICE,
Washington, November 12, 1851.

SIR: In consequence of the frequent applications of inventors for experiments to be made at the United States arsenals to test the merits of alleged improvements in arms or other implements of war, it appears to me highly desirable, if not necessary, to establish some general rules which may govern in all such cases. While I am willing to contribute the professional knowledge and personal services of the officers and enlisted men of this department towards making such experiments, I think it only fair to require that the inventors, who are to reap the pecuniary benefits of successful results, should bear the expenses *in money* requisite for carrying on the trials. I would, therefore, suggest the adoption of the inclosed general rules, or others of similar purport, to govern in all such cases.

As such applications are not unfrequently made to the Ordnance Bureau of the Navy Department, and as joint boards composed of officers of both services are often best suited to conduct such experiments, it may be well to consult with the Navy Department on this subject, and adopt a rule to secure uniformity of action in such cases by both departments.

The inclosed draft of regulations on the subject contemplates such concurrent action.

I am, sir, respectfully, your obedient servant,

H. K. CRAIG,
Colonel of Ordnance.

Hon. C. M. CONRAD,
Secretary of War

Regulation for the government of the Ordnance Department, in regard to experiments on new inventions.

In consequence of the frequent applications of inventors for experiments to be made by the government to test the merits of alleged improvements in arms and other implements of war, requiring in many cases the expenditure of public money to test their utility, it has become necessary to establish the following general rules to govern in all such cases :

Each application must be accompanied by a description or drawings, or both when necessary, setting forth the character of the invention, the object to be accomplished by it, and its supposed advantages ; the information so communicated to be regarded as confidential and kept secret, if so desired by the applicant.

If the invention or improvement be deemed worthy of trial, the government will contribute the professional knowledge and personal services of its officers and enlisted men, and the necessary ammunition, towards making the proper experiments ; but before they are undertaken, the applicant must deposit the cost, estimated by him, of such experiments, exclusive of the services of United States officers and enlisted men, and ammunition, with the officers selected to superintend the trial.

The amount so deposited will be applied to defraying the expenses of the experiments, so far as it will go ; should it be expended before the experiments have been prosecuted to an extent satisfactory to the inventor, an additional deposit must be made to secure their continuance. Should the experiments be completed, or should the inventor, for any reason, desire to discontinue them before the whole deposit is exhausted, the balance will be returned to him.

A record will be kept by the officer superintending the trials, which will be transmitted by him, with a report in each case, to the proper bureau.

Application for a copy of such record and report must be made by the party interested, to the proper executive department, which will give directions in the case.

The foregoing regulation is approved.

WAR DEPARTMENT,
January 6, 1852.

C. M. CONRAD,
Secretary of War.

[Indorsement.]

Respectfully submitted to the Secretary of the Navy, for his views on the proposed regulation.

WAR DEPARTMENT,
December 26, 1851.

C. M. CONRAD,
Secretary of War.

NAVY DEPARTMENT,
January 3, 1852.

SIR : The communication of Colonel Craig, U. S. A., addressed to the Department of War, and submitted for the views of this department on the proposed regulation, recommending for adoption certain regulations for the government of the Ordnance Bureau of the Navy and Army, in regard to experiments on new inventions, accompanied by a form of general rules to govern such cases, has received the consideration of this department, and is herewith returned.

I have the honor to inform you that this department has decided to adopt the general order, with a slight modification, a copy of which is inclosed.

I have the honor to be, with high respect, your obedient servant,
WM. A. GRAHAM.

Hon. C. M. CONRAD,
Secretary of War.

[11 W. D., 1851, and 276 M., 1851.]

WASHINGTON ARSENAL.

November 13, 1851.

SIR: Having received from the headquarters Eastern Division another communication relative to the execution of a division order No. 29, which I laid before you some time ago, I now transmit for your information copies of all the papers on the subject, including my reply to the circular just received.

Respectfully, your obedient servant,

A. MORDECAI,

Captain Ordnance, Brevet Major, U. S. A.

To Col. H. K. CRAIG,
Ordnance Department.

[Inclosure.]

HEADQUARTERS EASTERN DIVISION,

Troy, N. Y., October 13, 1851.

ORDERS No. 29.

Agreeably to the requirements of the circular from the War Department, dated November 2, 1849,* all officers of the general staff and staff corps not borne on post returns,

who are doing duty in this division and have other officers or enlisted men under their command, will make monthly returns of the same to these headquarters; copies of those made in the third and fourth military departments to be furnished the department commanders. Officers of the above description who are serving without commands, will report, by letter, to the same headquarters, at the end of every month.

Changes of station, or the temporary absence from his post, for any cause whatever, of an officer of the general staff or of a staff corps, will be promptly reported by him, as above prescribed.

Applications for leaves of absence or other indulgences from such officers will be made through department and division commanders.

By command of Major-General Wool.

O. F. WINSHIP.

Assistant Adjutant-General.

[Inclosure.]

CIRCULAR.

HEADQUARTERS EASTERN DIVISION,

Troy, N. Y., November 11, 1851.

The monthly return or report required of officers of the general staff and staff corps, by Eastern Division Orders No. 29, current series, has not yet been received from you, and I am directed by the general commanding the division to say that it must be furnished without further delay.

I have the honor to be, sir, your obedient servant,

O. F. WINSHIP,

Assistant Adjutant-General.

Bvt. Maj. A. MORDECAI,

Corps of Ordnance, Washington Arsenal, D. C.

* For copy of this circular, see page 675 ante.

[Inclosure.]

WASHINGTON ARSENAL, D. C.,
November 13, 1851.

SIR: I have to acknowledge the receipt this morning of the circular of November 11, from headquarters Eastern Division, relative to monthly returns. I trust that the commanding general of the Eastern Division will not suppose that the neglect imputed to me by this circular has been caused by any wish to deny or dispute the authority from which the order in question emanated. On the contrary, I carefully examined the order (No. 29) and the circular accompanying it, to see if it affected me in any manner, and I concluded that it did not, and that it was sent to this post in conformity with some rule or custom of your office as a mere matter of form. As it appears, however, that I was mistaken in this conclusion, I think it but just to myself to state briefly the reasons which led me to it.

In the first place, then, I do not think that I am included among the "officers of staff corps *not borne on post returns*," as I am borne on a monthly return of the officers and enlisted men at this post, which is rendered to the Colonel of Ordnance, and, as I understand, reported by him to the General-in-Chief, as required by the circular of November 2, 1849.

Secondly, I am not among the "officers of the above description who are serving without command," being in command of this arsenal. See Army Register, page 46.

Thirdly, I do not consider that I am among the officers "doing duty in the Eastern Division," because in the enumeration and description of divisions and departments, on page 47 of the Army Register for 1851, the District of Columbia is not embraced in any department or division, and I suppose that it is intentionally omitted, for obvious reason.

Having no desire or intention to enter into a controversy with superior authority on a question of this kind, I beg leave to be furnished with a copy of the form of report or return required by Order No. 29, and it shall be promptly rendered.

It is due to myself to state further that for fear I might not have rightly construed the order in question, I submitted it, immediately on its receipt, to the Colonel of Ordnance, who concurred with me in thinking that it did not apply to this post. I have, therefore, transmitted to him copies of the several papers, and of this letter.

Respectfully, your obedient servant,

A. MORDECAI,

Captain of Ordnance and Brevet Major.

To Maj. O. F. WINSHIP,

Assistant Adjutant-General E. D., Troy, N. Y.

ORDNANCE OFFICE,
Washington, November 15, 1851.

SIR: I respectfully submit herewith a letter from Brevet Major Mordecai, inclosing a copy of Eastern Division Orders No. 29, and of a correspondence between him and the assistant adjutant-general of that division on the subject of these orders.

I do not think that these orders apply to Washington Arsenal, or to its officers, who are excepted by the very terms of the orders; nor do I think that the circular of November 2, 1849, on which these orders are based, was intended to require such returns and reports as the orders call for from any of the armories or arsenals. If ordnance officers are assigned to the staff of any general officer they come under his orders and constitute a part of his command. But while stationed at arsenals and armories and not so assigned they are not doing duty in any particular military division, or for that portion of the Army only stationed in that division; but they are on duty in the Ordnance Department for the whole Army and not only for the Army, but also for the whole body of the militia of the country. While so stationed and on such duty they come under the regulations, established by the Secretary of War in accordance with the act of Congress of February 8, 1815, and are under the direction prescribed by the 1st and 2d articles of those regulations. All the returns and reports they are required to make are prescribed by section XIV of these Regulations, which are a part of the "rules and dis-

cipline of the service," to which the circular of November 2, 1849, requires them to conform. I respectfully request, in the examination of this question, a careful consideration of these regulations and also of the letter to you from this office of the 4th August last, from which I think it will appear that the Ordnance Department should be kept where the law places it, under the direction of the Secretary of War in time of peace; that the regular returns and reports are sufficient for all purposes of information and accountability, and that to multiply them would be troublesome and expensive, without any beneficial results.

I do not desire to exempt ordnance officers from serving on courts-martial when it may be convenient to detail them, or from any other duty to which they may be liable as officers of the Army. But whenever it may become necessary to place them on such duties, any information connected therewith can be promptly obtained from this office, or from the Adjutant-General. Still less do I desire, for ordnance officers, any exemption from the strictest supervision that the Secretary of War may deem proper. The arsenals and armories may be freely thrown open to frequent inspections from generals of divisions, inspectors general, or any other officers that may be designated for the purpose. Any irregularities, extravagancies, or improprieties that such inspections may develop, will, *when made known to this office*, be promptly investigated and will receive the proper correction.

I am, respectfully, your obedient servant,

Hon. C. M. CONRAD,
Secretary of War.

H. K. CRAIG,
Colonel of Ordnance.

ORDNANCE OFFICE,
Washington, December 5, 1851.

SIR: On the inclosed return for Frankford Arsenal, for November last, you will see it stated opposite the name of First Lieutenant T. J. Brereton, "on leave of absence for 20 days, commencing November 12, 1851, orders dated Headquarters Third Military Department, November 10, 1851."

It thus appears that an ordnance officer, serving at an arsenal of this department, with the superintendence and administration of which I am charged and held accountable, has been absent from his post nearly three weeks, without my knowledge of his absence, and without my having been informed of the intention to grant him leave, or consulted as to whether the service of the department would allow it to be done. The November return received yesterday is the first and only intimation I have had of this officer's absence, and I am now uninformed whether he has returned to his post, or whether he may not still be absent by an extension of his leave by the same authority. The exercise of such authority is in direct violation of the 236th paragraph of the General Regulations for the Army, published May 1st, 1847, by command of the President of the United States, for the government of all concerned, and by him directed to be strictly observed. Nor is the authority granted by the 233d or 234th paragraph of these Regulations, for these paragraphs do not dispense with the reference required by the 236th in the cases of the officers therein mentioned; in fact, they do not include such officers. Besides, the principle involved is injurious to the public service; for if *one* officer may be so absent, there is no limit to the number who may not be, and this department can never be sure of the execution of its orders, or of the proper care of the public property in its charge. In this particular case there was another evil arising from the mode of

granting the leave. Brevet-Major Hagner, the only other officer at the arsenal, it will be seen from the return, was absent as a member of a court-martial from the 26th to the 29th November, 1851, both inclusive; and the post, with public property deposited at it to the value of nearly \$600,000, was left four days without an officer.

It is my duty to bring this case to your notice. This is another of the evil consequences arising from the exercise of a control over this department different from that established by law. I stated in my reports of the 15th and 18th November last (which are now respectfully referred to), other disadvantages to the service, that these orders would occasion, in the shape of a multiplication of returns, at much trouble and expense, without a corresponding, indeed without any benefit. But these are trifling in comparison with the evils that may be expected to result from such an exercise of authority under these division orders, as the case in question presents.

I am, very respectfully, your obedient servant,

H. K. CRAIG,
Colonel of Ordnance.

Hon. C. M. CONRAD,
Secretary of War.

REMARKS.—General Wool's order No. 29 (October 13, 1851), does not authorize the granting of leaves of absence to the officers of staff corps, nor has he exercised such authority. It was General *Walbach*, and not General Wool, who gave a leave of absence to Lieutenant Brereton, and in doing so, he has misapprehended the *order*, as well as overlooked paragraph 236, &c.

R. JONES,
Adjutant-General.

[13 A, 1852.]

ADJUTANT GENERAL'S OFFICE,
Washington, January 10, 1852.

GENERAL: The Colonel of Ordnance has brought to the notice of the Secretary of War your "Special Orders" No. 27, of November 10, 1851, granting leave of absence for twenty days to Lieut. T. J. Brereton, Ordnance Corps. This action at department headquarters shows some misapprehension of Division Orders No. 29, of 1851, which only requires that applications from staff officers for leaves of absence and other indulgences, shall be made *through* department and division commanders, but does not authorize any action thereon, beyond the recommendation or expression of opinion required by the merits of the case.* It is seen

* See in connection herewith, the following orders of the War Department in 1854:

WAR DEPARTMENT,
ADJUTANT-GENERAL'S OFFICE,
Washington, May 9, 1854.

GENERAL ORDERS NO. 6.

[Extract.]

III. Officers of the general staff, or staff corps and departments, when not serving in a military department or under the orders of the General-in-Chief, must transmit their applications for leaves of absence exceeding seven days to the Adjutant-General of the Army, through the chief of their corps, for the decision of the Secretary of War. And all orders assigning or changing the posts or stations of such officers will only be given by the Secretary of War through the Adjutant-General's Office. * * *

By order:

S. COOPER,
Adjutant-General.

also, that you have overlooked paragraph 236, General Regulations of 1847, which requires that all such applications shall be referred by the Adjutant-General to the chief-of-the-staff department to which the officer belongs before the leave be granted.

The Secretary of War directs, therefore, that in future there be no departure from the manner prescribed for granting leaves of absence to officers of staff corps.

Very respectfully,

R. JONES,
Adjutant-General.

Bvt. Brig. Gen. J. B. WALBACH,
*Colonel Fourth Artillery,
Commanding Third Military Department, Baltimore.*

[Miscellaneous Letters, vol. 42, p. 396.]

ORDNANCE OFFICE,
Washington, December 18, 1851.

SIR: Your letter of the 11th instant reached me yesterday. The idea conveyed by it of your contemplated improvements, is too general to enable me to form an opinion of their character, or to give my views of their practical advantages, or otherwise, with any degree of confidence. I may remark that the subject of the best *form*, or figure, for projectiles is one which has received much examination, and has constituted a study with many practical and scientific men. All the researches and experiments on this subject, which have been numerous and careful, have effected no departure, for artillery projectiles generally, from the original figure of the sphere. I do not mean to assert that no other figure will answer, but only to call your attention to the matter, that you may maturely consider it in all its aspects before adopting, finally, any new plan and undertaking experiments which may be attended with labor and expense. I would suggest to you to perfect and complete all the *details* of your improvements, and to take an opportunity of exhibiting and explaining them to practical mechanics, before commencing the actual trial. If *detailed* descriptions and drawings are sent here it will enable me to form a better idea of your contemplated improvements than it is possible to do from the general description of them in your letter. I know of no objection to allowing you such conveniences at Springfield as may not interfere with the public operations there. These the commanding officer would probably afford, and beyond them I have not authority to go.

I am, respectfully, &c.,

H. K. CRAIG,
Colonel of Ordnance.

Capt. E. O. C. ORD,
Boston, Mass.

[Miscellaneous Letters, vol. 42, p. 409.]

ORDNANCE OFFICE,
Washington, December 24, 1851.

SIR: I have to acknowledge the reference to this office of a letter to you of the 22d November last, from Dr. Edward Maynard, in relation

to his patent gun lock and primer, with your request indorsed thereon for an official report on the subject from me. In compliance therewith I have the honor to report: Dr. Maynard's invention was first tried by a board of Army and Navy Officers, convened at Washington Arsenal by Special Orders No. 3, of 1845. The report of that board, together with a proposition from Dr. Maynard to sell to the government the right to make and use his lock and primer, was submitted by the Secretaries of the War and Navy Departments to another board composed of high officers of both branches of the service. This second board, after considering the report of the first, and after duly examining and comparing Dr. Maynard's plan and others for altering the flint to the percussion lock, recommended that contracts should be made with him on certain specified terms and conditions. The report was approved by the Secretary of War, so far as it applied to his department, and was referred to this office to be carried into effect. It was also, I understand, approved by the Secretary of the Navy, but of that I have no official information, although I have no doubt of it. In accordance with the instructions of the Secretary of War, a contract was entered into with Dr. Maynard, bearing date 20th March, 1845, being the same referred to in his letter. By that contract the sum of \$4,000 was paid to Dr. Maynard for the privilege of applying his improvement to four thousand arms; and the right of farther applying and using these improvements was secured to the government, in case it might be deemed advisable to use it, on the following terms, viz: For 10,000 arms, \$7,500; for 20,000 arms, \$10,000; and for 100,000 arms, \$25,000, with the additional stipulation that for any number of arms exceeding 100,000 the rate of charge should be the subject of farther agreement, but not to exceed twenty-five cents per arm. The right thus secured has not been exercised beyond the smallest number of arms specified in the contract, viz, 4,000, nor even to that extent as yet, and Dr. Maynard has received from the War Department therefor only \$4,000. The cause of this is to be found in that part of the report of the board which requires the second or practical test to confirm or refute the advantages of the improvement which the board had inferred from the first or scientific test. Of the correctness of the board's conclusions in regard to these separate tests, not only for this case but as a general principle, there can be, I imagine, no doubt. The farther exercise of the right secured by the contract has been postponed to await the result of the second test. With this view some of the arms (200), altered from the flint-lock to Maynard's plan, were sent to the ninth military department to be put into the hands of the troops there serving, and to be used by them in the field. The nature of that service was such as it was supposed would expose the arms to all or nearly all the accidents and changes of a campaign. The reports of the officers (Brevet Lieutenant-Colonel Reeve and Brevet Maj. Larkin Smith) whose companies were armed with them, after having them in constant use for four months, have been received and are inclosed herewith. They are favorable to the improvement, considered in regard to its practical advantages. Some objections were disclosed by this practical test, but, in my opinion, they may be readily overcome. The most material seems to be that of the *strips* (of primers) becoming temporarily unserviceable in damp weather by absorption of moisture. This, I think, may be remedied by making them entirely water proof, to effect which I do not think would be difficult; it will require a longer time to prepare the primers, and render it only necessary to have our supplies in advance of probable wants. Another objection, that of the want of means to return the primer fed out by cocking, is of little importance. The

projecting part may be readily and safely cut off by letting down the hammer slowly, and the primers thus lost amount to very little in cost. The greater care required to keep the altered lock clean is the consequence of the mode of alteration, by which the magazine for primers is made to project much beyond the surface of the lock-plate. This objection may be nearly if not entirely avoided by making new lock-plates for the altered arms thick enough to allow of *milling*, so as to sink the magazine into the plate. This will make the cost of alteration somewhat greater, but not more so, it is thought, than will be counterbalanced by overcoming this objection. I understand that the Maynard lock and primer are finding favor for sporting purposes, and, from all that I have seen of them and heard of their trials, I regard them favorably for military purposes, particularly for the use of mounted troops. This department is now engaged in preparing an arm for such troops, combining the breech-loading principle, after Sharp's patent, with Maynard's improvements. It has yet to be submitted to the second or practical test, which, I think, there is little doubt will prove it to be what is needed for the kind of service required of our mounted troops. One great advantage of this lock is that it admits of the use of the percussion cap as well as of the Maynard primer. By supplying both, any inconvenience from the failure of either may be avoided. I think it probable that the government will have occasion to avail itself of the use of Maynard's improvement to a greater extent than it has purchased the privilege of doing. To how much greater it is not possible to say with exactness at this time. But considering the stock of arms on hand, susceptible of alteration, and the greater than ordinary proportion of mounted troops, of which volunteers (the main strength of our armies for war purposes) are composed, I should think the extent named in Dr. Maynard's first proposition not extravagant. The advantage of adopting the second proposition would be to close the business finally and place the matter entirely in the hands of the government, without the necessity of farther bargaining or agreements. Whatever may be done in the matter, I would respectfully suggest should be done promptly. If the alteration or manufacture of any large quantity of arms be undertaken, it will be altogether advisable, both for uniformity of manufacture and for *economy*, to use machinery for the purpose; the contrivance and construction of which, occupying some time, must necessarily precede the work on the arms. Dr. Maynard's letter is returned herewith.

I am, sir, very respectfully, &c.,

H. K. CRAIG,
Colonel of Ordnance.

Major-General SCOTT,
Commanding in Chief, Headquarters of the Army, Washington,

[1 W. D., 1852.]

ORDNANCE OFFICE,
Washington, D. C., December 29, 1851.

SIR: It is deemed necessary to have a meeting of the Ordnance Board, to examine and consider the subjects hereto annexed. The Board, as now organized, consists of Lieutenant-Colonel Baker, Brevet Lieutenant-Colonel Ripley, Major Symington, Brevet Major Mordecai and Brevet

Colonel Huger. I request your authority for convening the Board on the 12th of next month.

Respectfully, your obedient servant,

H. K. CRAIG,
Colonel of Ordnance.

Hon. C. M. CONRAD,
Secretary of War.

SUBJECTS FOR THE ATTENTION OF THE ORDNANCE BOARD.

1. Barbette carriages for 10 and 8 inch columbiads.
2. Beds for heavy mortars.
3. Windlass for gins.
4. The examination of some steel rifle barrels sent to Washington Arsenal from Harper's Ferry Armory in its relation to the question of the advantages of steel or iron as a material for rifle barrels.
5. The propriety of adopting, to a certain extent, the French system for muskets, called "à la tige"—how far—and whether by altering, or with new arms.
6. The practical test, by firing with service charges, of the correctness of classifying the iron guns according to the tenacity, density, and character of fracture of the metal.
7. Lengthening the rod of cavalry musketoon, to prevent breaking the ramrod swivel.
8. A new edition of the Ordnance Regulations, the present edition, of 1839, being exhausted.

[Indorsement.]

Approved.

C. M. CONRAD,
Secretary of War.

WAR DEPARTMENT, *December 29, 1851.*

[Letters to W. D., vol. 10, p. 229.]

ORDNANCE OFFICE,
Washington, December 31, 1851.

SIR: Having learned that application has been made for the quarters at Fort Monroe Arsenal by an officer of artillery at Fort Monroe, and that it has been entertained by the commanding officer at the fort and transmitted to Washington through General Wool, I deem it not improper to submit to you the following remarks on the subject, supposing that the application may be laid before you.

The ground of the application can only be laid on an erroneous idea of the meaning of the 966th paragraph of the General Regulations for the Army, edition of 1841. That paragraph gives the right of choice of quarters from the highest to the lowest grade; but only to quarters which have been designated by the officer of the Quartermaster's Department. Now, it is well known that the quartermasters at Fort Monroe Arsenal are not, and never have been, under the control, in any degree or manner, of the Quartermaster's Department, and that they never

have been, nor can be, *while arsenal quarters*, under such control, either for designation or any other purpose, of the officers of that department.

They are, therefore, not only not included in the provisions of the regulation above mentioned, but are expressly excluded from being subject to the right of choice mentioned therein. Again, these quarters were built by virtue of an act of Congress, approved 2nd July, 1836 (chap. 268, vol. 5, U. S. Statutes at Large, p. 78), making an appropriation "for the quarters of officers at Fort Monroe Arsenal." They were, therefore, designated by law as quarters for the officers of the arsenal, and not for the officers of the fort. And further, the question is a settled one. The regulation of the War Department, of the 7th April, 1843, provides, in order (I quote its words) "to prevent any conflict from arising among the different corps of the Army, in relation to quarters, barracks, arsenals, &c., the Secretary of War has laid down the following rules, which will govern all cases except where a deviation may, *under special circumstances*, be found necessary, when directions for the purpose will be given by the War Department.

"1. * * * * * Arsenals being under the control of the Ordnance Department will not be interfered with by any other branch of the service."

I am, sir, very respectfully, your very obedient servant,

H. K. CRAIG,
Colonel of Ordnance.

Hon. C. M. CONRAD,
Secretary of War.

[Indorsement.]

Officers of the line at Fort Monroe have clearly no right to interfere with the ordnance quarters. The arsenal is a permanent establishment, and, although within the limits of the fort, is entirely distinct from it; besides, these quarters appear to have been erected out of an appropriation made expressly for quarters of the arsenal, and have ever since been used exclusively for that purpose. No reason is perceived why this arrangement should be changed. As regards the engineer quarters I have entertained some doubts. Fort Monroe can hardly be considered "a new work in progress of construction," inasmuch as it is substantially completed and has been long occupied by troops and under command of the officers who command them. Nevertheless, there are portions of the original plan that have not yet been built, and an estimate for the purpose of carrying on the work is contained in the annual estimates of the present year. Besides this, the same engineer officers who have charge of this work are also in charge of Fort Calhoun, the work on which will, it is believed, shortly be resumed. For these reasons it is deemed unnecessary to interfere with the present distribution of quarters.

C. M. CONRAD,
Secretary of War.

JANUARY 13, 1852.

[Letters to Ordnance Officers, vol. 12, p. 433.]

ORDNANCE OFFICE,
Washington, January 17, 1852.

SIR: Your letters of the 12th and 13th instants, on the subject of your detail as a member of a general court martial, have been received. The letter of the 21st February, 1850, on the same subject, from Brevet Major Hagner, was, on its receipt here, "submitted to the Secretary of War, that

the proper correction may be applied, the construction given to the circular being erroneous." A decision in the case was then made by the Secretary of War as follows, viz: "I am of the opinion that the Article of War makes certain duties of a judicial nature alike to be performed by all commissioned officers. A denial of this right would be a subject of just complaint by any of the corps of the Army." That decision is in force, and settles the question you have presented.

Respectfully, your obedient servant,

H. K. CRAIG,
Colonel of Ordnance.

Capt. J. A. BRADFORD,
Charleston Arsenal.

[Miscellaneous Letters, vol. 42, p. 431.]

ORDNANCE OFFICE,
Washington, January 21, 1852.

As directed in your letter of the 15th instant, I transmit herewith a copy of regulations for the government of the Ordnance Department, with the amendments made since their adoption to those portions having any application to the military service other than that at the armories and arsenals. As by far the larger part of the Ordnance Regulations relates *exclusively* to such service, and would be of no use to any other than ordnance officers, who are furnished with those regulations printed separately, it is supposed that it will not be desirable to include the whole of them in the *General Regulations* for the *Army*, but only such parts as have direct application to officers not serving in the Ordnance Department; as was done in the General Regulations of 1841. I have marked all such parts () in the copy sent herewith and made the proper amendments; an explanatory paragraph (like par. 919, General Regulations of 1841), and referring officers desiring minute details of the ordnance branch of the military service to the regulations for the government of that department, should be added.

I would suggest respectfully that the article on the militia in the General Regulations (Article LX in the Regulations of 1841) might be amended by adding articles 104 to 107 inclusive of the Ordnance Regulations. If it be intended to include the *whole* of the Ordnance Regulations in the system of general regulations to be formed, then several of the parts relating *exclusively* to the service at armories and arsenals should be amended. But these amendments will be published in a new edition of the *Ordnance Regulations* which I am having prepared, but which will take some time to complete, and need not, it is thought, delay the preparation of the General Regulations.

Respectfully, &c.,

H. K. CRAIG,
Colonel of Ordnance.

Bvt. Maj. Gen. R. JONES,
Adjutant-General, U. S. Army.

[Miscellaneous Letters, vol. 42, p. 445.]

Indorsement on application of Maj. E. Harding, commanding Watertown Arsenal, for 30 days' leave of absence; referred to Colonel of Ordnance by the Adjutant-General for remark.

Major Harding is mistaken in supposing that the refusal of the Colonel of Ordnance to act on the direct application to him compels him to

appeal to the headquarters of the Eastern Division. That refusal only notified Major Harding of what the division orders required, and that the Colonel of Ordnance could not sanction a disregard of them.

I have no objections to the leave being granted, but I cannot omit to remark that the application again comes to me irregularly. The division orders required it to "be made through *department* and division headquarters," and the former headquarters appear to have been overlooked.

Respectfully returned to the Adjutant-General of the Army.

H. K. CRAIG,
Colonel of Ordnance.

ORDNANCE OFFICE, *February 2, 1852.*

[Circular Letter to the Secretary of War circulated among and signed by artillery officers in 1851.]

SIR: The undersigned, officers of artillery, beg leave respectfully to state the following facts: That the law of Congress, which in 1832 separated the Ordnance Corps from the artillery, did, in fact, as experience has shown, deprive the artillery not only of the scientific part of their profession, but at the same time of all the practical exercise of construction and manipulation, without which no amount of theoretical knowledge can be of avail. A body of efficient artillerists cannot be made in a few days, weeks, or even months: a considerable period is indispensable for them to gain even a passable knowledge of the construction and use of their extended material of war. In addition to all the knowledge of the infantry soldier, the artillerist has to learn the complete maneuvering, under all circumstances, of not less than sixteen different pieces of heavy ordnance, as well as of field batteries, mountain artillery, and war rockets. Also, he should be able to prepare, in the laboratory, all those auxiliary aids which military science has rendered indispensable in the operations of war. This knowledge does not exist in any one part of our military establishment. The Corps of Ordnance have, indeed, monopolized the construction and preparation of all artillery materials; but they are not taught, nor have they the soldiers to maneuver and exercise the guns. Hence, our artillery is, in reality, a compound body, and like all similar combinations, is more or less inefficient from want of unity.

The artillery have in charge the defense of those important works along the seaboard which, at an immense expense to the nation, have been constructed to guard the access to the vitals of the country, and the loss of any one of which—defending the principal cities and harbors—would, in all probability, entail excessive embarrassments to commerce, as well as great pecuniary loss and destruction of life in its recapture. In addition to this duty, they supply to the operating Army that indispensable arm of service, the field batteries, without which the best organized military body would be rendered powerless in a campaign and liable to destruction. With such important duties to perform, every government has bestowed peculiar attention to the artillery: its officers are selected as men of science and military education, and every facility afforded them, not only to obtain thorough theoretical instruction in their profession, but also the practice in the construction and use of their various material, without which the most extended researches are but idle speculations.

Since the separation of the ordnance from the artillery, the latter, with the exception of its glorious light batteries, have almost entirely been converted into infantry. No school of instruction exists to teach even the

making of a cartridge, the loading of a shell, or filling of a fuse. Nor is this all. Not only is there no means of instruction in the fabrication of its most simple details, but even for the exercise and maneuvering of the different cannon totally inadequate means are to be found at the most favored posts. With the exceptions of the casemate, barbette, and field guns, the pieces themselves are wanting.

Neither the various kinds of mortars or columbiads, siege guns or howitzers, mountain artillery or rockets, are to be found at any of our forts in the use of the artillery; their very names are, for the most part, unknown, and when casually seen at an arsenal in care of the Ordnance Corps, the artillery soldier looks with curious interest on things of which he is profoundly ignorant. Is his officer any better off? It is true that at his valued alma mater he received instruction in the *theory* of his profession, and as much *practice* as time would allow; but fortunate indeed may he regard himself if he has fired half a dozen rounds from any piece of heavy ordnance during his entire service at the Academy; since which time, he has, in the general case, received no instruction or practice whatever.

Thus the mass of the artillery are, and have for a long period been, almost totally destitute of means of instruction in their profession. That corps which, perhaps, in all services but our own, ranks highest in science and favor, has in our own Army been reduced to a mere body of foot soldiers. This state of things is most unfortunate for the arm of service to which we belong, and no amount of energy on our part can remedy the evil. We are powerless by the force of circumstances, not by our own will, but in opposition to our most earnest wishes.

We would therefore respectfully and earnestly request that you will, sir, take such remediate steps as the case may demand. If required, a board of artillery officers could recommend a practical remedy, at little or no additional cost to government, either by sending artillery companies to the arsenals or by a school or schools of instruction and practice, where, by a rotation both of officers and non-commissioned officers, a proper amount of knowledge of their profession might be imparted to the artillery regiments.

With the conviction that the importance of the subject justifies the urgency of our appeal, we have the honor to subscribe ourselves,

Very respectfully, your obedient servants,

[Signed by artillery officers.]

Hon. SECRETARY OF WAR.

SIR: You have been pleased to present a "system of instruction for heavy artillery" to the corps of artillery for their guidance and instruction. We, members of the regiments of artillery, respectfully present the following facts respecting our incapacitated condition to impart the necessary information, the evils that have resulted and are likely to result from it, and beg to suggest some of the means of rendering us efficient artillerists. Nominally our regiments are artillery; in reality they are infantry, expected to fulfill the duties of the former when called upon by the exigencies of service, and yet we are supplied with but a small portion of the means of imparting the necessary instruction to our non-commissioned officers and privates, or even of extending any practical information among ourselves.

By this system and others, and to be efficient artillerists, we are required to become familiar with many of the operations incident to a siege,

its carriages, implements, machines, and their maneuvers; the preparing, packing, preserving, and transporting of ammunition and material; the service of siege, garrison, sea-coast, field, and mountain artillery. Beyond the Military Academy and the field batteries (where the proportion of officers is small and the length of service limited) we have not the means of extending the instruction beyond the manual of the barbette and case-mate batteries, with, at some of the garrisons, a few rounds of blank and target practice.

At some of our forts the carriages are dismounted and packed away in ordnance storerooms. At none of them have we carriages, implements, or utensils for siege service, and even the many grates for hot-shot firing now at our posts are closed against us. Deprived thus of the means, how can we give practical instruction to our men with machines and inventions which we know only in theory? How maintain that efficiency which will be required of us in time of need? How excite among our officers a spirit of emulation, or a stimulant for the acquisition of knowledge which will make us keep pace with the world, and enable us to compete with any other service? Qualities we must possess, or degenerate into comparative inefficiency.

We saw with mortification, during the Mexican war, a battery of mountain howitzers given to an ordnance officer junior to many of us, assisted by other officers of the corps, of little or no experience, just from the Military Academy, and manned by ordnance recruits, enlisted to perform in *arsenals* duties necessary to the war, because, it was alleged, that we (the artillery) "had no practical knowledge of that arm." Again, a battery of siege pieces was manned by these very men, ordnance recruits, probably for the same reason that induced the authorities to refuse us the battery of mountain howitzers. And in the first year of the war, at Monterey, a mortar was used by an ordnance officer, but was afterward given to and more efficiently used by an artillery officer. Moreover, whilst we were deprived of our appropriate arm, batteries were given to volunteers, sailors, and marines, and in one instance it was attempted to combine the artillery and sailors into a battery, and still further to insult the professional pride of the soldier by making him the mere driver. These were some of the evil results of our want of practical knowledge of these services. Such they are likely to be again if we continue as we are.

We therefore respectfully suggest that the means be given us to instruct in these different arms, and to become familiar with the preparation of ammunition, with inventions and improvements we know nothing of till years after their adoption, and then only in theory; to perform at the arsenals experiments in our own arm, now performed by ordnance officers and men; that some of our companies may be sent to the different arsenals, where, with care and perseverance, a practical artillery school of instruction can be established with little expense and much benefit. We only ask for what justly belongs to us, and of which we are deprived. The interests and success of each arm of service are strongly united. The inexperience and ignorance of one may jeopard the success of many combined movements. Our honor, the honor of our country, is dependent upon us, and justice to us and to other arms with whom we must serve require the maintenance of our efficiency to support that confidence our government must repose in us in time of danger.

[Signed by artillery officers.]

To the Hon. SECRETARY OF WAR.

MEMOIR ON THE UNITED STATES ARTILLERY.

When the army was reorganized in 1821, with a view to a peace establishment, capable of furnishing the elements of an efficient force for war, the artillery was composed of 12 field officers, 40 captains, and 144 lieutenants, in all 196 officers; and 2,036 enlisted men, including 56 ordnance men, and constituted about one-third of the army. It was divided into 36 companies, and these embodied into four regiments of nine companies each. Four of the companies, one to each regiment, were directed by law to be designated and equipped as light artillery. One supernumerary captain was allowed to each regiment, exclusively for "Ordnance duty," and all officers of the corps were made subject to detail by the President of the United States for service in that branch of the artillery.

The organization was intended to produce under proper administration an accomplished and efficient artillery force. It contained within itself all the necessary elements. Provision was made for the discharge of the duties attaching to the staff of the artillery, the manufacture of arms and munitions of war, their preparation for use, preservation, &c. Care was also taken, by attaching to each regiment a battery of light artillery, to furnish the means of instruction to a number of officers and men in that important branch of the service. It was expected that the officers, chosen annually from the higher graduates of the Military Academy, would be well grounded in the scientific principles on which their arm of the service depends, and that a full development of their powers and capacities would be called forth by their duties in the arsenals, and in the school for artillery instruction and practice established soon after, and in which a large proportion of their time was required to be passed.

It was expected that a system so complete, with a school of practice which would necessarily improve with time and bring the whole corps within its beneficial influences, would impart a high degree of practical knowledge of their profession to both officers and men, would create and foster an *esprit-du-corps*, a most powerful element of proficiency, discipline, and usefulness, excite emulation, and diffuse its good effects throughout the service. These expectations have not been fulfilled, and all we have gained is experience of its defects and the necessary knowledge for correcting them.

The first cause of the failure must be looked for in the fact that there was no directing head to the artillery.

The colonels of the different regiments were not connected in interest nor controlled by a common chief. Uniformity and efficiency in instruction, and concert of action for the advancement of the arm, were thus by the very organization of the corps rendered impossible. This want of a head soon produced its legitimate effects.

In 1827 the ordnance (which had been "merged in the artillery" by express provision of the act of 1821) appeared in the Army Register, for the first time since that year, as a separate department. It then consisted, as appears from the Register of 1827, of a lieutenant-colonel of artillery stationed at Washington, and the four supernumerary captains allowed for ordnance duty. These officers, thus placed under a chief and detached from their regiments, soon felt all the impulses of distinct interests. They had everything to gain by a separate organization, and finally, in 1832, succeeded in getting themselves increased in numbers and formed into a separate department. As soon as formed the inevitable instinct of such bodies to aggrandizement sprung up, and in 1838 the Ordnance Department was again increased at the expense of the

artillery, the functions of which corps it has gradually and almost entirely usurped. In 1842 it was put in complete possession of the national armories. In 1847 the war with Mexico was made the pretext of a still further increase, an unlimited one as to enlisted men, and with that increase the department assumed the legitimate duties of the artillery in the field. From four officers and 56 men allowed in 1821 it has been increased nearly ten-fold in both officers and men.

The artillery was also increased in 1838 and in 1847. It now consists of four regiments of 12 companies each, 16 field officers, 48 captains, 144 lieutenants, 3,000 enlisted men; and the Ordnance Department of 6 field officers, 12 captains, 18 lieutenants, 15 military storekeepers, 53 ordnance sergeants, and an unlimited number of enlisted men; the last general return to Congress reporting 510 in service. Taking these numbers the aggregate for both artillery and ordnance was 259 officers and 3,563 non-commissioned officers, musicians, and privates, exclusive of brevet 2d lieutenants. [Ex. Doc. No. 1, 31st Congress, 2d session, H. of R., General Return of the Army.]

The regiments of artillery have rendered important and useful services, but their efficiency in their own has been much injured. In 1821 they were so disposed as to form garrisons for the numerous forts along the Atlantic coasts, on the northern lakes and Gulf of Mexico, and for the arsenals, and thus in detachments of single companies became divided into separate and almost isolated bodies, gradually losing that *esprit-du-corps* and spirit of military improvement which spring from a union of numbers and community of feelings and interests.

Experience soon made this apparent, and Mr. Calhoun, then Secretary of War, provided a remedy by establishing an artillery school for instruction and practice at Fort Monroe, Va. This school was well constituted for the objects for which it was intended. It consisted of one colonel, one lieutenant-colonel, one major, one captain director of artillery, with a lieutenant as assistant; one lieutenant as instructor of mathematics, also assisted by a lieutenant; all the cadets who should be promoted to the artillery on graduating, and ten companies, completely officered, drawn from the four regiments. Besides this regular organization, an additional company, stationed at Fort Monroe at the time, was attached to the school, which was placed exclusively under the orders of the War Department, thus withdrawing eleven companies from the control of their colonels, and, so far, breaking up the regimental organization. This shows that that organization was incapable of furnishing an efficient artillery force.

Such a school, *properly directed*, the companies being changed from time to time after completing a course of instruction, that all might in turn be passed through it, could not have failed to diffuse a great amount of practical professional knowledge throughout the corps, to elevate the character of the men, to give them a high idea of the importance and respectability of their profession, especially of their own branch of it, to increase their efficiency and improve their discipline. It would have improved with time, have become the depository of the fruits of our own experience, and have served as a reservoir of practical military knowledge, drawing from other services all their improvements, and diffusing the benefits of them throughout our own.

The institution was broken up in 1832, before its good effects could be fully developed. The "Black Hawk" war in that year, and the Florida war, which broke out soon after, caused all the companies of artillery to be sent into the field, since which time, with the exception of the light batteries, they have served almost exclusively as infantry, the regiments being increased in 1838 to ten companies each.

In the same year, 1838, the light companies were mounted for the first time since the reduction of 1821. The battles of the Mexican war, particularly those of Palo Alto and Buena Vista, and the siege of Fort Brown, proved what the artillery officers were capable of doing with their own arm, and so elevated the reputation of the light batteries that the force allowed by law was doubled by Congress in 1847. At the same time the regiments were increased by two companies each. Artillery companies were frequently detailed during the war, as at Vera Cruz and Chapultepec, to serve the heavy batteries, in which duty they earned much but received little credit, for the batteries themselves were in the hands of the ordnance officers, and care was taken that to them the chief glories of the heavy artillery should be given. Very little interest or professional pride could be felt in the matter by the artillery, which were armed and habitually serving as infantry regiments, and brigaded with them; whilst the siege-train, mountain howitzers, rocket batteries, and mortars, and, in fact, everything pertaining to the artillery except the light batteries, was left in the possession of the ordnance.

After the war with Mexico the artillery was distributed along the eastern, southern, and western frontiers from Mexico to Oregon, where they still remain. Armed and equipped as infantry, their artillery duties do not extend beyond the police of the fortifications and the firing of a very few heavy shot at a target two or three times in the course of the year. It can be safely asserted that not one-tenth portion of the men have seen a shell thrown or rocket used in time of peace, nor have they the slightest knowledge of the innumerable important duties devolving upon a well instructed artillery in time of war. The school of instruction has never been re-established, nor will it be so long as the two branches of the artillery are disunited and their interests antagonistic.

The corps, exclusive of the ordnance, is now one-third larger than it was in 1832; but in efficiency and practical knowledge of its legitimate duties it is probably behind its condition in that year. The light batteries have formed striking exceptions to this remark, but in recently dismounting three-fourths of them a heavy blow has been struck at their efficiency.

Amongst the causes of the failure of the system of 1821 the principal one was the subsequent organization as a separate body of the Ordnance Department, and this was mainly due to the want of a chief of artillery to administer the affairs of the corps. That department has gained a high reputation for ability and usefulness in a portion of its peculiar duties, but when called upon to act with or supply artillery troops it has often, either through inability or a want of sympathy with a rival corps, been deficient in rendering the services due from it and expected by the army. The artillery proper, excepting the light batteries, has in the meantime sunk in professional character. The senior officers of artillery with few exceptions were men entirely unfitted for the higher duties of their arm. They felt little interested in a service which they did not understand and the importance of which they could not appreciate, and under their control the corps was fast going to ruin when the school for instruction was established to check the decline.

The Ordnance Department probably owes its existence as a separate body partly to this cause, at least this state of affairs furnished strong arguments for the establishment of that department if only to withdraw an important branch of the artillery from adverse influences; and it was formed from some of the best of the officers then in the corps. The loss of those officers, with the discontinuance of the school of practice and the service for years after of the regiments in the field, exclusively as

infantry, inflicted great injury upon the corps. Nor were its senior officers at the end of this period the men to restore it to its proper character and duties. Old, worn out, without sufficient education as artillerists, or practice in its service, and therefore feeling no particular interest in their regiments as artillery, they were content to make infantry battalions of them. At the present time, of the four colonels of artillery one entered the service as an infantry officer, another as a dragoon, a third as a marine, and only one as an artillerist. We cannot wonder at the result when we consider that in addition to this the artillery regiments are organized essentially as infantry battalions, and that to keep up with the improvements in the artillery requires constant study and application.

After the first formation of the Ordnance Department lieutenants of artillery were detailed for duty in the arsenals. It is stated that they did not take a sufficient interest in those duties, and that the increase of 1838, by the addition of lieutenants permanently attached to the department, much increased its efficiency. This may be true, it probably is so, and ought to have been expected. The two departments of the artillery were separated, their duties distinct, their interests to a certain degree antagonistic; and officers detailed from one department to do the inferior duties of another, could not be expected to apply all their energies to drudgery, the results of which could only serve to elevate that other department at the expense of their own, for they saw that, the period of their detail passed, their connection with the ordnance terminated and they returned to their regiments to find that henceforth they were to be infantry in all but the name, and that it was useless to look for any advancement in knowledge or reputation in their own arm. Moreover it was not for the interest of the Ordnance Department that these duties should be well performed by the artillery subalterns. It would at once have deprived it of all grounds for further increase. There was a reason, therefore, not only for permitting those duties to be loosely performed, but for placing the matter in a worse light than it deserves.

Had there been a common head to the artillery and ordnance, an officer whose reputation and interests had been involved in the efficiency of both branches, it would, to a certain extent, have obviated all these evils, but still a difference of position, strongly marked by the difference of consideration and pay attached to the duties, would have excited ill feelings and jealousies, and injured the tone of the service.

The artillery is now divided into two separate and rival branches, antagonistic in their interests, and each, in a great degree, ignorant of the duties assigned to the other. The ordnance officers confined to the arsenals and armories have, in many respects, performed their legitimate functions ably, and have fulfilled, so far, all that was expected of such a corps, but with the exception of artillery experiments those duties are essentially civil. They do not serve with troops and are therefore wanting in the main requisites of military knowledge, discipline, and instruction. On the other hand, the artillery officers are confined solely to service with troops, and are carefully and jealously excluded from all practical knowledge of other duties absolutely essential to an accomplished artillerist. The consequent antagonism of feelings and interests and marked distinction in duties have injured deeply the efficiency of the body as a whole, and so long as they exist so long will each department remain half instructed. This half instruction requires two corps for duties that might be performed by one, and adds to the numbers and cost of the army, whilst it reduces its value and capacity for service.

There is no necessity for a continuance of this state of affairs. It can be easily corrected with advantage to the country and the service and with little or no injury to individuals. We require as small an artillery establishment as can, consistently with the best interests of the service, be established. It must be sufficient in itself for the current wants of the service and capable of expansion for war at the least expense of efficiency. All its parts should be kept in harmony and subordination to the great object for which the whole is created and its administration systematized with a view to economy as well as efficiency.

It is believed that these objects will best be attained by the adoption of the following organization :

Let the regiments, as such, be broken up, the Ordnance Department merged into the artillery, the officers of all ranks, exclusive of military storekeepers, arranged according to the dates of their commissions in their respective grades, and the "Corps of Artillery" constituted as follows :

I. One chief of artillery with the rank, pay, and emoluments of a brigadier-general, 2 colonels, 2 lieutenant-colonels, 4 majors, 44 captains, 44 second captains, 44 first lieutenants, 44 second lieutenants, 2 sergeants major, 2 quartermaster sergeants, 160 sergeants, 128 corporals, 64 artificers, 8 farriers and blacksmiths, 64 musicians, and 1,584 privates. Total 185 officers, 2,012 non-commissioned officers and men. From this corps there should be formed 8 batteries of light artillery and 24 companies. Each battery to consist of 1 captain, 1 second captain, 1 first lieutenant, 1 second lieutenant, 5 sergeants, 4 corporals, 2 musicians, 2 artificers, 1 farrier and blacksmith, and 54 privates; one or two of the batteries may be equipped as mountain or prairie artillery. Each company to consist of 1 captain, 1 second captain, 1 first lieutenant, 1 second lieutenant, 5 sergeants, 4 corporals, 2 musicians, 2 artificers, and 48 privates.

II. The brigadier-general to be selected from the officers of the corps, with reference to talent and administrative capacity. He is to command and administer all the affairs of the corps in whatever pertains to its instruction and equipment, including the duties now intrusted to the Chief of Ordnance. To be responsible to the General-in-Chief in his military capacity, and in his administration to be under the control of the War Department. The batteries and companies to be recruited, equipped, and mounted under his direction. All the officers of the corps to be assigned to duty by the chief of artillery. The office of military storekeeper to be abolished, its duties to be performed by officers of artillery.

III. An artillery school of practice to be established for the instruction of the whole corps, officers and men.

IV. Promotion to all grades, excepting that of brigadier-general, to be by seniority. The 60 captains now in service to be increased by promotion to 88 and divided into the two classes of captains and second captains, who shall all rank with other captains of the army according to date of first commission as captain, the distinction being only for the corps.

Promotion to grades containing more than the authorized number of officers to cease until such grade is reduced to its assigned limits by ordinary casualties. Until the aggregate number of officers is so reduced, including an average proportion with other corps of 32 brevet second lieutenants, to which number, instead of 60 as now allowed, it is proposed to restrict the corps, a number of cadets from the graduating class, not to

exceed one-third of the vacancies occurring the preceding year, may be assigned annually to the artillery.

V. At arsenals and armories requiring so many men, a company or more, according to the wants of the service, should be stationed. For duties at other arsenals and for such assistants to detached sergeants as may be necessary at posts not garrisoned by troops a number not exceeding 120 men may be drawn from the companies, provided that not more than five men be drawn from any one company.

VI. An "Artillery Board" to be formed, to be intrusted with the duties of the present "Ordnance Board," and, in addition, to prescribe the qualifications for promotion of officers, the course of studies to be pursued by them, &c. The members to be selected without regard to rank from the officers of the corps by the chief of artillery. No brevet second lieutenant to be considered eligible for promotion until he has passed a satisfactory examination before this board, and no lieutenant to be promoted to a captaincy until he shall have passed a further examination, and exhibits proofs of a thorough practical as well as theoretical knowledge of all the duties that should be required of an accomplished artillery officer.

VII. The pay and emoluments of the corps to be the same as allowed to ordnance officers by section 18 of the "Act to increase the present military establishment of the United States," approved July 5, 1838, and the pay of the non-commissioned officers and men the same as allowed by section 16 of the same act, except that corporals shall be allowed \$10 per month.

VIII. On the war establishment each light battery to be increased at the discretion of the President to any number not to exceed 1 captain, 1 second captain, 2 first lieutenants, 1 second lieutenant, 7 sergeants, 6 corporals, 6 artificers, 2 farriers and blacksmiths, 2 musicians, 134 privates; and each company to 1 captain, 1 second captain, 2 first lieutenants, 2 second lieutenants, 7 sergeants, 6 corporals, 6 artificers, 2 musicians, 256 privates; making a total for the corps of 239 commissioned officers, 7,424 non commissioned officers and men.

IX. Under the present organization, the artillery and ordnance, as appears from the last general return for the Army, numbers, exclusive of brevet second lieutenants, 22 field officers, 222 captains and lieutenants, 15 military storekeepers, 3,563 non-commissioned officers and enlisted men, and costs, according to the tables of pay in the Army Register, and the estimated value of the other supplies named, for pay, clothing, subsistence, and fuel per annum* \$903,751.56. As proposed the corps will consist of 185 officers and 2,012 men, and will cost for the same articles †\$593,207.99; an annual saving in the expenses of \$310,543.57, and a reduction in numbers of 74 officers and 1,551 men.

It is believed that the organization here sketched will furnish an artillery force much more efficient than the present, and that by the reduction in the expense means can be furnished for the wants of some other branches of the service. The principal evil from which the artillery has hitherto suffered has been, as we have seen, a want of unity. Even if it could be shown that a department so purely technical and founded upon scientific principles could afterwards dispense with an organized direction yet officered as the regiments were in 1821 by men, many of whom were without the requisite military education and qualifications for so important a branch of the service, the entire devotion of all the talent and industry of an able chief would have been required under the

* See note B.

† See note A.

most favorable circumstances to elevate the corps to the high standard at which so small a force should be maintained. Nor could it have been fully brought up to this standard until time had, in a great degree, changed the *personnel*. But this unity and able direction were wanting and circumstances were all unfavorable. Every outbreak amongst the Indians caused the artillery to be diverted from its proper duties, thus creating the necessity of a distinct department (costing all that was saved by a misapplication of the troops), which is rapidly growing up into as large a force as the original artillery establishment. As every increase of the regiments has been expressly for infantry duties, and as this increase has been maintained and devoted to these duties, it follows that the so-called artillery of our army is too large, if not too large for the extent and importance of our coasts and service, at least too large in proportion to the whole force the country is disposed to maintain to be devoted exclusively to its own arm and thus secure its efficiency. If a part is to be constantly employed on other duty the whole will be injured. There are many companies serving exclusively as infantry or cavalry in Florida, Texas, New Mexico, Oregon, and California. If these troops are to serve as infantry or cavalry they should be organized as such. They will then be much more efficient in their new arm and less hurtful to the artillery.

During the last session of Congress it was in serious contemplation to mount one or two of the infantry regiments, and a very considerable increase of cavalry was admitted by all to be necessary to fulfil our treaty stipulations with Mexico. On the other hand, our maritime frontier requiring artillery defenses has also been greatly extended since 1821, and the coasts of Texas, California, and Oregon will require an artillery force for their protection. All these facts have been kept in view and the proposed formation of the corps of artillery held subordinate to them. Assuming that the country will be willing to maintain an artillery force equal in numbers to that of the establishment of 1821, the smallness of that force requires that it should be confined entirely to its legitimate duties and so organized as to admit of the greatest development in time of war at the least expense of efficiency.

It is believed that the proposed plan will satisfy so far as is practicable all these conditions, will secure a maximum of efficiency at a minimum of expense, enable the government to dispense with a large number of field officers unnecessary for a peace establishment, and by its organization and pay provide to a certain extent a compensation for the want of promotion to the higher grades, whilst the reduction of expense will furnish the means to increase if necessary the cavalry and infantry force.

The consolidation of the corps places it at once under a responsible chief, and permits the limitation of field officers to the number actually necessary for a school of instruction, for the command in time of peace of the few harbors requiring more than one company, and the direction of the principal armories and arsenals. Economy, efficiency, uniformity, and system will necessarily result from intrusting the administration of its affairs to an artillery board and a chief whose reputation and interests are involved in the well being of the whole corps.

The organization of the batteries and companies is somewhat different from that of 1821, and a larger proportion are light batteries. It will hardly be denied that the number provided for and now allowed by law (eight) is required by the wants of the service. On the peace establishment they should consist of four pieces each, with forty-two horses; a number barely sufficient for a disciplined army of 16,000 men. In war

each battery can be increased to six pieces. From the necessity of having a trained body of drivers as well as cannoners these batteries cannot be augmented in the same ratio as the companies without a much greater proportional loss of efficiency. It is not necessary that all officers should be specially instructed in the batteries. From those of the corps who have served in them through a grade or more a sufficient number may be obtained at any time for the probable wants of the service. Four officers, the present allowance, have been assigned to each company and battery instead of five, as in 1821. It would be better to have the officers serve in the light batteries, arsenals, and armories through a grade, or for at least four years, than to make details for short periods. Hence there is no necessity for assigning all of them to companies. The number of captains and lieutenants not thus assigned is forty-eight, which is less than the number now in the ordnance, inclusive of military storekeepers. In lieu of the ordnance sergeants and enlisted men now authorized by law, an additional sergeant and increased number of privates is allowed each company from which details may be made. This will keep a check on the employment of men for other than necessary purposes. Companies stationed at arsenals will supply both officers and men for other duties than the necessary ones of guarding and keeping them in good order and police.

The company officers of artillery by existing laws are one captain, two first lieutenants, and one second lieutenant; and it is proposed instead to give each one captain, one second captain, one first lieutenant, and one second lieutenant, and to apportion the officers of the corps accordingly in the grades.

This is the organization of both the English and French artillery, which are composed as follows:

It will be seen that the proportion of officers is greatest in the higher grades to increase the promotion, and that the number of field officers is much larger in proportion than we propose for our service.

BRITISH ARTILLERY, 1851.		FRENCH ARTILLERY, 1847.	
Colonels commandant	Lieutenant-general 5	Generals of division	3
with rank of	Major-general 8	Generals of brigade	9
Colonels	27	Colonels	46
Lieutenant-colonels	54	Chefs d'escadron	153
Captains	105	First captains	386
Second captains	118	Second captains	285
First lieutenants	215	First lieutenants	243
Second lieutenants	58	Second lieutenants	187
		Sous lieutenants	76

Ten adjutants taken from the second captains are included in the above.

Chefs d'escadron answer to lieutenant-colonels and majors. The sous lieutenants correspond with our brevet second lieutenants.

The English suppressed the grade of major of artillery in 1827 and gave a double number of lieutenant-colonels instead, thus still more increasing the promotions in the corps, as a captain goes at once to a lieutenant colonelcy. The senior captains are besides made brevet majors in the army. The French have preserved in their field officers a due proportion with regard to the lower grades, but give a great preponderance to the number of captaincies over lieutenantcies. The English almost immediately promote officers entering the artillery to first lieutenantcies. The propriety of our adopting the same grades will be shown in the discussion of our proposed increase to the war establishment. Its justice will be shown in connection with the reasons for putting the corps on cavalry pay and providing for the great decrease in promotion from the suppression of field officers.

For the service of any piece of heavy artillery at least five men are necessary of whom two ought to be old soldiers; one for gunner is indispensable. The peace organization will not give quite the number required to furnish two men to each gun, when the companies are increased to 256 men. Each of the eighteen non-commissioned officers and artificers of a company on the war footing should be assigned to the command of two pieces; which will give a heavy battery of 36 guns to the company, requiring at least 5 men each, 180 gunners and cannoneers; add the 18 non-commissioned officers and artificers and 2 musicians, and it will give a total of 200 required to be present with each company for duty; and to maintain this state, 56 should be added for duties at arsenals, armories, recruiting, sick, &c., &c.

Many of our small works will not require so large a force of artillery, and a company of half that number would be sufficient. In this case the second captain and one of each grade of lieutenants and half the number of non-commissioned officers and men may be detached, forming a company of 3 officers and 128 men. The additional lieutenants will be furnished in great part from the brevet second lieutenants of the corps and such lieutenants as can be spared from staff and arsenal duties, so that in war but a small additional number of officers will be required for a largely increased body of men.

Under this organization each of the 24 companies will be in fact the skeleton of two strong companies of artillery, consolidated and reduced in time of peace for instruction and economy. To make them efficient—particularly with so few officers, the non-commissioned officers and men of the peace establishment should be thoroughly instructed, of good character and each fitted for the duties of a non-commissioned officer. To secure this, such inducements should be offered as will command and retain the services of active and intelligent young men of good habits, Americans if possible, and means of thorough instruction should be furnished them. To secure such men the corps should be placed on cavalry pay, and to retain them in the service their pay should be increased on each enlistment. For instruction, an artillery school of practice should be established, to consist of five or six companies. The companies should pass through this school in turn, and the men should be as thoroughly instructed as possible in all that pertains to the service of artillery, the attack and defense of fortified positions, and construction of temporary redoubts and batteries for field service, &c. Cadets promoted to the corps should be ordered to the school of practice to serve at least two years there. They should then be transferred to the arsenals, and after completing a proper course be assigned to companies. When promoted from one grade to another, officers should serve as a general rule in the particular department to which they may be promoted, whether batteries, companies, or arsenals.

This would produce a well-instructed body of officers and give the chief of the corps a wide range for selection of captains for arsenals and other staff duties, who might be kept permanently on such duty when peculiarly qualified. In the French artillery, the best, perhaps, in the world, and on which our material is modeled, such a system is pursued.

All officers of the arm are instructed in all the different duties of artillery, and are thus qualified to command the troops, to direct the establishments, and to contribute in perfecting the material of which they have personally experienced the advantages and inconveniences. Of some such system we are in great need; the opinion or advice of an artillery officer in matters appertaining to his own arm is with us rarely asked and never considered, unless they agree with those of the ordnance

board, and our own experience is thus rendered useless to the service and the country. A change in this would be of advantage to both departments.

Justice as well as policy requires that cavalry pay should be granted to the whole of the corps. Of 244 officers, 68 (of light artillery and ordnance) are now entitled to receive it, and by existing laws 80 of the 176 captains and lieutenants under the proposed organization would be on cavalry pay. Of the 3,563 enlisted men of artillery and ordnance, 1,149 receive cavalry pay, 510 ordnance men receive \$9 per month (one dollar more than a cavalry private), and 1,904 receive \$7 per month (one dollar less than cavalry pay). This taking the dollar excess from the ordnance man and giving it to an infantry paid soldier is equivalent to paying 2,169 men (more than the whole proposed force, and a much larger proportion of whom are non-commissioned officers) cavalry pay and 1,394 men infantry pay. As the whole corps will be subject to the same duties, receive the same instruction, and be liable to be ordered into the field at any moment, in which case they must serve as mounted troops, they should be placed on an equality with them as to pay. The difference of expense to the country will be very slight, and a marked distinction between different classes of the same corps of equal rank would be injurious. In the case of officers, this, connected with the increased proportional number of captains, will be a practical compensation for the loss of rank from the paucity of field officers. Promotion in the artillery from the year 1821 has always been much slower than in the infantry, from the greater number of lieutenants in proportion to the whole number of officers in the corps, and this disproportion was much increased in 1847 by the addition of two companies to each regiment without a corresponding increase of field officers.

When an officer of the infantry or cavalry attains his captaincy, his comrade, who entered the artillery at the same time, is but half-way up the list of first lieutenants, and for the future the disadvantage will be greatly increased by the very small number of field officers allowed by the proposed organization. If to the new corps were assigned a number of field officers to correspond with the number in other corps, having regular promotion from lieutenantancies, it would embrace besides the chief of the corps, 6 colonels, 6 lieutenant-colonels, 18 majors, 60 captains, 58 first lieutenants, and 58 second lieutenants; an arrangement which would be much more favorable to the interests of individual officers of the corps than the proposed one.

As the good of the service however, requires the less favorable organization, some equivalent should be provided, that officers may not be discouraged from entering the artillery. Such an arrangement as the one proposed, by promotion to captaincies, will partially effect this.

It is as important to retain the instructed artillery officer in the corps as the soldier, and it would be well therefore to limit eligibility to captaincies in the Subsistence and Quartermaster's Departments to the subalterns of cavalry and infantry. This, whilst it would make promotion more rapid in those corps, would decrease it in the artillery, but the effect would be to turn the attention of artillery officers entirely to their own duties.

The organization proposed will leave a surplus of officers in some of the grades, and it is proposed to reduce them to the assigned limits by stopping promotions to such grades, until by the ordinary casualties of service they shall be reduced to the number allowed. The vacancies occurring in the artillery and ordnance range from twelve to fifteen annually. The number of officers now on the register is 250. The num-

ber proposed, including brevet second lieutenants, is 217. Several of the officers holding commissions in the staff will probably vacate their line commissions, and this, with the ordinary casualties, will reduce the number to the assigned limits in two or at most three years. A retired list, removing at once the superannuated and inefficient, rendered so by old age, infirmities, or wounds, would very soon effect the reduction.

We may readily anticipate the good effects of placing the advancement and instruction of the corps under the direction, to a great extent, of a body of intelligent officers appointed by the chief of artillery. This board will naturally form a council of advice and administration, and all questions affecting the professional efficiency of the corps will be laid before it for careful consideration. The examination of officers will secure their constant attention to their professional duties, and develop all the elements of excellence.

This system has been productive of the best effects in the medical department and enforced professional study. There is no reason why it should not produce equally beneficial effects in a special and scientific corps like the artillery. It cannot be expected that the new corps will immediately possess all the excellence required. An act of Congress cannot at once bring it into full and successful operation. Two or three years will be required to bring the system into complete working order. In the mean time, the change from the present to the new condition will be gradual. The number of officers will by that time be reduced to the required extent, and the details of the system can be elaborated.

The brevet second lieutenants and the first lieutenants highest on the list might then be required to present themselves for examination on a prescribed course. This system, rigidly carried out, would soon develop the character and capacities of the whole body of artillery officers, make them known to the proper authorities, facilitate the selection, by the chief of artillery, of the ablest for any required duties, develop the energy and ambition of all, and tend to advance in every respect the public interests.

A very slight investigation will discover the necessity of a thorough reorganization of the artillery, with a view to the efficient application in time of war of all the energies and talents of its officers and men. The maritime frontier of the United States is unequalled in extent and importance by that of any other power. Our seaboard towns are large and wealthy, and our shipping interests are, or soon will be, greater than those of any other country. With these advantages we must accept the necessary inconveniences. Extended frontiers necessarily present numerous assailable points. Great and wealthy cities and a valuable commerce present inducements and objects for attacks. To guard against these, our coasts are now being fortified, the approaches to our cities and the entrance to the harbors closed against an enemy, and a secure protection offered by the same means to our shipping interests. In 1846 works for nearly 6,000 guns were either completed, in process of construction, or projected on the frontier from Maine to Louisiana. To these works must be added those on the northern lakes and the coasts of Texas, California, and Oregon. Our seaboard and lake frontiers will require for perfect defense at least 10,000 guns. To keep so many forts as they will arm permanently garrisoned is impossible. They must be kept in order for service during peace and garrisoned mostly from the citizens of their neighborhood during war.

Whatever may be thought by many as to the value of fortifications, that system of defense has been adopted and will now prove the best and

cheapest. The Corps of Engineers cannot furnish one officer to each work. We must then look for the means of supplying this deficiency and that of troops. The proposed organization of the artillery furnishes these means. The constant application of the officers to their appropriate duties, which should include such a knowledge of military engineering as would enable them to construct their own temporary batteries, repair at once the injuries to permanent works during a siege, and perform all the more important duties of the engineer officers, will provide for one of these deficiencies. The knowledge and proficiency of the enlisted men enabling them to instruct the militia in their most necessary duties will supply the other.

For 10,000 guns spread over so large a sea frontier 80,000 men at least will be required, and the 1,400 men of the heavy artillery will be the minimum number that can possibly give them the required instruction. The corps of artillery will be in truth but the organized staff required by the citizen artillery, on whom the defense of our coasts must ultimately fall. To perform these important duties well they should themselves be old soldiers of good capacity, thoroughly instructed, and exclusively devoted to artillery duties.

The present is a favorable moment for the proposed re-organization. The officers with very few exceptions are intelligent men of good military education, possessing the talent, the capacity, and the will to elevate their corps to an equality with that of the best artillery in the world. They have keenly felt, not only the want of an opportunity, but the positive obstacles that have been purposely as well as accidentally interposed to prevent their doing it. The insulting and contemptuous manner in which they were excluded from their appropriate duties during the Mexican war has roused them to the importance of making the best use of their capacities and of asking at least the privilege of being permitted to make themselves efficient in the duties for which they are maintained, and which the government has a right to expect and will expect them to render in time of war. It is now and has long been customary to assert that they are incapable of performing their legitimate duties, and the proof referred to is the fact that they are not permitted and do not perform them. It is true that all possible expedients have been used to destroy their efficiency as artillerists, but there is one reply that must close the mouths of all detractors. Every battle in which they were called to take part with their own arm gave brilliant proofs of the falsehood of all these charges. On the open plains of Palo Alto, Resaca de la Palma, Buena Vista, and Molino del Rey, on the mountain heights of Monterey and Cerro Gordo, in the attack of the strong places of Vera Cruz and Chapultepec, in the defense of Fort Brown, and of Puebla, and in the streets of Mexico, the artillery officers gave ample and decisive proofs of their capacity and their skill under all possible circumstances, and won for their arm a high reputation with the country. The distinguished names of those who died at their guns, of Ringgold, of Vinton, of Drum, Benjamin, and Johnston; of those who have since died full of honor, of Duncan and Ridgely, of O'Brien and Shover, and of those who are still on the rolls of the artillery, of Lowd, Washington, Bragg, Sherman, Taylor, Steptoe, and Kendrick, and numerous others; the names of all these are positive proofs that the corps contains a vast amount more than could have been expected under the circumstances, of ability, energy, and skill. Reference to official reports of all the Mexican battles will fully prove this. We will refer to but one of them, that of Buena Vista. General Taylor's report abounds in praises of the artillery, and he says that Bragg's battery "saved the day"; towards

the close of his report he says, "the services of the light artillery always conspicuous, were more than usually distinguished. Moving rapidly over the roughest ground it was always in action at the right place, and at the right time, and its well directed fire dealt destruction in the masses of the enemy. While I recommend to particular favor the gallant conduct and valuable services of Major Monroe, chief of artillery, and Captains Washington, fourth artillery, Sherman and Bragg, third artillery, commanding batteries, I deem it no more than just to mention *all* the subaltern officers. They were nearly all, detached at different times, and in every situation exhibited conspicuous skill and gallantry." Then follows the names of *all* the other artillery officers who fought at Buena Vista.

It must not be forgotten, however, that the services of these officers and of the artillery generally throughout the war were rendered under the most disheartening circumstances, in many cases, and always under great disadvantages. With the exception of a few of the men of the light batteries the soldiers were totally uninstructed in their duties and unremitted attention and labor, more than should have been required, and under responsibilities that should never be imposed, were thrown upon the officers. They had not only their own duties to perform, but also those of their non-commissioned officers and men, and a failure, with the inferior means at their disposal, to perform the utmost that could have been expected from a veteran and well-instructed artillery, would have ruined the reputations of individual officers and would have led to the loss of battles, to recover the effects of which would have cost thousands of lives and millions of money to the country. The officers and men of the artillery have been and always will be ready to peril their lives whenever required and wherever necessary, if called upon by their country to do so; but still they ask, as the simplest act of justice, that they may not be required to throw away their reputation and that of the army, for the want of such organization and instruction as would secure to them the ordinary elements of success. In another war they may be called upon to meet an English or a French instead of an Mexican army. If then required, with half instruction for themselves and no instruction for their men but such as they can hurriedly impart on the field, to meet on equal terms the veteran and almost perfect artillery of those nations, they may sacrifice themselves in the effort, but it must not be expected that they can save their reputations or advance the honor of the American flag.

NOTE A.—*Cost of present establishment of ordnance and artillery.*

PAY.

1 Colonel of Ordnance, per month	\$183 00
4 colonels of artillery, at \$166 per month	664 00
1 lieutenant-colonel of ordnance	162 00
4 lieutenant-colonels of artillery, at \$145 per month	580 00
4 majors of ordnance, at \$141 per month	564 00
8 majors of artillery, at \$129 per month	1,032 00
12 captains of ordnance, at \$98.50 per month	1,182 00
8 captains of light artillery, at \$106.50 per month	852 00
18 lieutenants of ordnance, at \$81.83 per month	1,472 94
16 1st lieutenants of light artillery, at \$89.83 per month	1,437 28
8 2d lieutenants of light artillery, at \$89.83 per month	718 64
40 captains of artillery, at \$79.50 per month	3,180 00
80 1st lieutenants of artillery, at \$69.50 per month	5,560 00
40 2d lieutenants of artillery, at \$64.50 per month	2,580 00
15 military storekeepers	1,187 46
8 adjutants and regimental quartermasters, at \$18 per month, extra ..	144 00

48 captains artillery for clothing account	480 00
53 ordnance sergeants, at \$18 per month	954 00
8 sergeants major, and quartermaster sergeants, at \$17 per month	136 00
48 1st sergeants of artillery, at \$16 per month	768 00
144 sergeants of artillery, at \$13 per month	1,872 00
32 corporals of light artillery, at \$10 per month	320 00
160 corporals of artillery, at \$9 per month	1,440 00
16 musicians of light artillery, at \$9 per month	144 00
80 musicians of artillery, at \$8 per month	640 00
96 artificers of artillery, at \$11 per month	1,056 00
512 privates of light artillery, at \$8 per month	4,096 00
510 privates of ordnance, at \$9 per month	4,590 00
1,904 privates of artillery, at \$7 per month	13,328 00

Pay per month	51,323 32
	12

Pay per annum	615,879 84
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CLOTHING—5 YEARS.

53 ordnance sergeants, at \$126.28½	\$6,692 97½
8 sergeants major, &c., at \$127.70½	1,021 62
32 sergeants light artillery, at \$136.00	4,352 24
160 sergeants artillery, at \$120.06	19,209 60
16 musicians light artillery, at \$136.85	2,189 60
80 musicians artillery, at \$118.86½	9,503 40
560 corporals and privates of light artillery, at \$132.14½	74,002 60
510 privates ordnance, at \$118.13½	60,248 85
2,144 corporals and privates of artillery, at \$113.88	241,158 72

Clothing for 5 years	421,385 60
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Clothing for 1 year	84,277 12
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Average per annum, \$23.65½ for each soldier.

SUBSISTENCE.

3,563 non-commissioned officers and men.
209 laundresses.

3,772 rations per diem, at 12 cents per ration, \$43.80 per annum, \$165,213.60.

FUEL.

5 colonels, 36½ cords per annum	182½
17 lieutenant-colonels and majors, 26 cords per annum	442
60 captains, 21½ cords per annum	1,275
162 lieutenants, 16½ cords per annum	2,673
4,038 non-commissioned officers, privates, servants, and laundresses, for each six, 3½ cords per annum	6,423½

Cords of wood per annum	10,966
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At \$3.50 per cord	3½
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\$38,381

RECAPITULATION.

Cost for pay	\$615,879 84
Cost for clothing	84,277 12
Cost for subsistence	165,213 60
Cost for fuel	38,381 00

Total per annum	903,751 56
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NOTE B.—Cost of proposed establishment of artillery and ordnance.

PAY.

1 brigadier-general, per month	\$246 50
2 colonels, at \$18½ per month	366 00
2 lieutenant-colonels, at \$132 per month	324 00
4 majors, at \$141 per month	364 00

16 captains light artillery, at \$106.50 per month	1,704 00
72 captains artillery, at \$98.50 per month	7,092 00
16 lieutenants light artillery, at \$89.83 per month	1,437 28
72 lieutenants artillery, at 81.83 per month	5,891 76
4 sergeants major, and quartermaster sergeants, at \$17 per month	68 00
32 1st sergeants, at \$16 per month	512 00
128 sergeants, at \$13 per month	1,664 00
128 corporals, at \$10 per month	1,280 00
64 artificers, at \$11 per month	704 00
64 musicians, at \$8 per month	512 00
8 farriers and blacksmiths, at \$11 per month	88 00
1,584 privates, at \$8 per month	12,672 00
Extra pay to detached sergeants	128 00
Clothing responsibility	320 00
Pay per month	35,573 54
	12
Pay per annum	426,882 48

CLOTHING.

2,012 non-commissioned officers and men, at \$23.65½ each	\$47,590 51
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SUBSISTENCE.

2,130 non-commissioned officers, men, and laundresses, 1 ration each, at 12 cents per diem, \$43.80 per annum	\$93,274 00
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FUEL.

3 brigadier-generals and colonels, at 36½ cords	109½
6 lieutenant-colonels and majors, at 26 cords	156
88 captains, at 21½ cords	1,870
88 lieutenants, at 16½ cords	1,452
2,325 non-commissioned officers, privates, servants, and laundresses	3,681½
Cords of wood per annum	7,268½
At \$3.50 per cord	3½
	25,441

RECAPITULATION.

Cost for pay	\$426,882 48
Cost for clothing	47,590 51
Cost for subsistence	93,294 00
Cost for fuel	25,441 00
	593,207 99
Cost of present establishment	\$903,751 56
Cost of proposed establishment	593,207 99
Difference	310,543 57

Remarks on the circular letters to the Secretary of War, to be signed by artillery officers, with a review of the memoir on the United States artillery, January, 1852.

These letters set forth that the officers of artillery (at any rate those who have signed the letters) are unacquainted with the practical duties of their profession, and have not the means of acquiring a proper practical knowledge of those duties and of instructing the soldiers therein. They also intimate that the separation of the Ordnance Corps from the artillery, and its organization as a distinct branch of the military service,

has been the cause which has brought about this state of things, and they ask of the Secretary of War a practical remedy, such as a board of artillery officers may recommend; suggesting that this remedy may consist in sending artillery companies to the arsenals, or in establishing a school or schools of instruction and practice, where professional knowledge may be imparted to the different artillery regiments in rotation.

Had not the admission come from the artillery officers themselves, it would, I imagine, have been difficult to convince people of the existence among them of any want of professional knowledge. It is true the artillery, generally, has for years past been doing duty as infantry. But that has resulted entirely and solely from the necessity of the case. The country wanted their services *as infantry*. Although retaining so large a nominal artillery force, it had no employment for them as such, and instead of reducing the numbers, they were assigned to that duty which, in the judgment of the proper authority, was thought most suitable to *subserve* the wants of the country. But, while serving their country in the way in which it had pleased that country through its properly constituted authority to direct, a portion of them were called upon to take up their proper arm and use it in actual war against an enemy. The history of that war, and especially the part borne in it by the artillery, would hardly prepare one now for the admission contained in the memorials of its officers of a want of professional skill and knowledge. What artillery ever effected better or more glorious results? If these were attained with imperfect skill and inferior professional knowledge, must not the success be attributed, in a measure at least, to the completeness and excellence of the arms, equipments, and munitions furnished by the Ordnance Department? It may be confidently asserted, and is now so asserted without the fear of contradiction, that no army ever took the field better provided with all the supplies which it is the province of the ordnance to furnish. The degree of perfection attained in their construction is believed to have been fully experienced in our success in the terrible conflicts which occurred during the Mexican war. At the commencement of that war the Ordnance Department had had a separate organization as now established for about eight years, with one partly separate and partly mixed for six years previous; prior to which time, from the reduction of the military peace establishment in 1821, it had remained merged in the artillery. The kind of existence best calculated to promote the public interests, whether an entirely distinct organization, a mixed one, or a merged one (which is no organization at all), is, therefore, no longer a problem to be solved. Each has been fairly and fully tried. Let experience—practical experience—the actual result of trial, the only unfailing test of excellence or inferiority, answer which is best for the public interests, and let that best be permanent. Compare the armament and equipment of our troops with what it was before the separate organization of the Ordnance Department. Then we had no field artillery, but some iron guns mounted on the antiquated Gribeauval carriages, with clumsy, unsafe, and unwieldy caissons, and implements and equipments corresponding in inefficient and awkward inferiority to the guns they pertained to. We had no such thing as a siege train, and none had been seen in service for many years. We had no bronze artillery and were not competent to its manufacture. We had no regularly adopted seacoast and garrison gun-carriages. We had no efficient mortars; and although the shell guns had been before invented by an ordnance officer of the old corps before its organization was destroyed by the merging process, we had never availed ourselves of their power as weapons of war, and indeed were not aware of it. So much for the

material of our artillery under the merged state of the Ordnance Department: there was no uniformity, no system, nothing but inefficiency and confusion. The armament and equipment of our infantry, too, although not so inferior as that of our artillery, wanted system and uniformity. What says experience, too, in regard to the professional knowledge and skill of the *artillery* before the separation from it of the ordnance? Then, their knowledge of artillery maneuvers and exercise was not only less than now, but the means of acquiring knowledge and skill therein were not in existence in the country: they had not been devised; there were not even books in our language accessible to them which might impart a theoretical acquaintance with these matters. Such a thing as a harnessed battery had not been seen in the army since the war of 1812; not a seacoast gun had been mounted, dismounted, fired, or maneuvered in any way for many years: mortar practice was unknown, and there were no mortars to practice with; the operations of a siege were regarded only as something that had constituted a lesson on the blackboard at West Point, and no such thing as a siege train was to be found to give any more familiar idea of what those operations actually were. The erection of batteries, the fabrication and use of gabions, fascines, &c., were things that some few had read of, but none knew. The artillery were then nothing but infantry, and even at the artillery school of practice, established especially to give practical instruction in that branch of the military service, there was little taught besides the infantry battalion drill. The idea of establishing such a school was a most excellent one. But the means of teaching, the school apparatus, were wanting; there had been no separate ordnance corps to construct them, and they were not constructed or even devised. Hence the school failed to accomplish what was expected from its establishment; it became unpopular, and was discontinued. Let those who remember what was the state of the artillery, both as to professional knowledge and skill and as to its material, when there was no separate organization of the Ordnance Department, and what it has since become and is now—let them say whether the degree of knowledge and skill now *commonly* possessed does not far surpass those of any (even the most accomplished) officer of that time, and whether the means of increasing and perfecting them do not exceed what they then were in an infinite degree. The Ordnance Department, on its resuscitation from its merged state, found the whole subject of its appropriate labors requiring complete revision. Let some of the results due to its existing organization, believed to be known to the army at large and to the public, be stated. And, first, generally by securing for the use of the government competent knowledge and experience, it has by improved fabrications accomplished a vast saving to the government, reduced the cost and improved the quality of all arms and munitions of war. Since the national armories have been placed under its exclusive charge, the reduction in the cost of arms manufactured thereat has been such, that the difference between the present cost of the musket and that under the former system of management for the whole number of arms made would amount to more than the pay of the *whole Ordnance Corps, commissioned and enlisted*. The American arms, exhibited with those of other nations in the *Musée des armes* at Paris, are said to be superior to all others in that military museum. Before the present organization of the Ordnance Department we had never succeeded in making bronze guns in this country—although many attempts had been made and much expense incurred to accomplish it. The department took up the subject, and sent its officers to the foundries to give it their personal supervision, until by study and perseverance success was attained; and

we are now no longer dependent, as before, on foreign importations for our bronze artillery, but fabricate it equal to any in the world. Under the former system our heavy seacoast and garrison cannon of iron were very defective. The only test of their durability and safety for use, was an excessive powder proof, which weakened such as withstood it, and impaired their fitness for service. Now the tenacity, density, and character of fracture of the metal of each cannon are tested, both before the casting and by samples taken from the guns. The *value* of the material is thus ascertained before we proceed to the powder proof, which we are thus enabled to regulate within the limits of injury to the pieces proved. The result is that instead of unsafe guns, nearly as formidable to their users as to the enemy, we now cast iron guns, believed to be equal to the Swedish. Formerly our only test of the strength of powder was derived from the firing of an ounce charge with the *mortar eprouvette*. This bore no relation to the actual strength and effect of powder, as used in large charges in service. This defect, never noticed under the former system, attracted the attention of the Ordnance Department, and was corrected by a series of scientific experiments admirably conducted by an ordnance officer, whose labors have been published, and their value recognized not only in our service, but by translations of his work into foreign languages for the benefit of those of other countries. The result is, that now we know the actual effect of powder as it is used, instead of its supposed effect derived from a fallacious test. Before the present organization of the Ordnance Corps, there was no *system* of artillery. Arms, carriages, &c., made at one place would not interchange their parts with those made elsewhere—now, the parts of our small-arms are thrown promiscuously together, and the complete and perfect arm is made up by taking the parts from the heap as they come to hand. All parts of our carriages and implements are of invariable dimensions and form, and any part that may give way, or be injured in service, can be replaced by simply calling on an arsenal for such a part of such a carriage or implement. From a lot of broken arms or carriages the sound parts can be taken, and will fit together so as to make up complete serviceable articles. Such spare parts are sent with the parks in the field, and are always available to repair damages in the shortest time and at the least expense. Complete manual and text books, admirable for their minuteness and system, of all the ordnance fabrications, have been published by the Ordnance Corps, which furnish full information concerning this branch of the military service to all the corps of the army.

These are some of the results of the present separate organization of the Ordnance Department. It found its peculiar business in a state of chaos, confusion, and inefficiency—it has introduced system, uniformity, and efficiency. It can point to the *results* of its labors and call upon *facts* to sustain the opinions of the four successive Secretaries of War, who urged upon the notice of Congress the mischief of the plan of 1821, and the adoption of the more efficient and economical system now established. These results have verified the declaration of the late Senator Calhoun. He it was who suggested the merging of the Ordnance Department in the artillery—and he it was who declared that he had regarded the measure merely *as an experiment*—that the experiment had been tried, and that it had signally failed. These results have more than substantiated all the advantages which the advocates of the measure claimed would follow from its adoption, in the debates on the bill for the organization of the Ordnance Department in 1832.* As

* Gales & Seaton's Register of Debates in Congress, vol. 8, part 2, pp. 2242 to 2246.

surely as like causes produce like effects, so surely will a resort to the system then abandoned prove again a signal failure—not only accomplishing no good end, but doing injury to both branches of the service and to the military efficiency of the whole country. For, the providing of munitions of war for the use of the *artillery* is not the sole nor the most important business of the Ordnance Corps. The two largest establishments of the department are the national armories, which supply arms for the infantry, which forms the strength of an army, and also for the rifle and cavalry regiments. These troops might, with equal reason as the artillery, desire to fabricate their own arms and ammunition, and to be stationed at the armories and arsenals for the purpose of instruction therein. Nor is the Ordnance Corps created merely to provide military supplies for the standing army in time of peace. Its principal business, and the bulk of its expenditures, are to arm the *national militia* and to prepare the *country* for a state of war. Even in peace, the annual issues to the militia are many times the amount and cost of the issues to the army. This fact alone will show on what foundation stands the opinion that the Ordnance Corps is but an appendage to the artillery, or that the business of that corps might be done by the artillery in the intervals between their own duties. A proper performance of their appropriate work is amply sufficient to occupy the whole time and attention of either corps. *To mix them would make, as it did make when tried, indifferent artillery and worse ordnance. The ordnance branch of the military service would not be the less necessary than it now is, if we maintained no artillery and kept no standing army in time of peace.* The nation would still provide the means of arming itself in case of war, and would require and employ a body of men, qualified by knowledge and experience, as the Ordnance Corps now is, to provide those means in the best manner.

The argument is advanced by some that those who use the arms should fabricate them, or understand the details of their mode of fabrication. So far from this being true, it is confidently asserted to be just the reverse. If the argument be good, it may be applied to the clothing they wear, the bread they eat, and the thousand other supplies necessarily in common use. But there is good and substantial reason why the users should *not* fabricate. It is natural for all men to look with favor on their own works, and to view any defects therein with lenity. They will pass over imperfections of their own creation, which, as the work of others, they would strictly criticise and condemn. The maker and the user should exercise a check upon each other: the latter sparing no defect in the work of the maker, but constantly urging towards perfection, and the former watching that his work is not condemned from carelessness, or improper mode of using it. Besides this having been exemplified in the results of the separation of the Ordnance Department from other corps, and its establishment as a distinct branch of the service, the principle is strikingly illustrated in our naval architecture. During the war of 1812 our national vessels were superior to those of any other country. They were made by ship-builders, and not under the direction of sailors. Since that time, while our commercial marine has made greater advances than that of any other nation, our vessels of war, built under the direction of those who were to use them, were not only not improved, but actually retrograded, and lost, in a great measure, their former reputation for sailing qualities. And at this time it is understood that the modeling, shaping, and other details of construction are left to the naval constructors, whose separate labors in their own branch of business have produced the best ships of our navy.

One of the remedies suggested by the artillery officers for their (admitted) want of professional information and skill, is to send companies of artillery to the arsenals for instruction. This plan will certainly not be found to afford to the artillery the professional benefits they suggest. There are no means of artillery practice at the arsenals. There is but a single arsenal, and that at the artillery post at Fort Monroe, where there is a sufficient range for artillery practice of any kind. At no other is it possible to fire anything but blank cartridges, without jeopardizing private property and individual safety. There is scarcely one of them where any piece of ordnance, above a field gun, is mounted, and no casemates, parapets, traverse circles, or other preparations to admit of the material of artillery being placed in the position and condition necessary to make it available for practical instruction. This can only be done at the forts. The arsenals are merely workshops and store-houses for the fabrication and storage of munitions of war; for the use, not of the artillery only, but of every arm of the military service. The operations at these establishments are not the business of artillery troops, and furnish no military employment for them. To carry on these operations properly, requires the employment of a number of civilians—artisans skilled in the mechanical arts used in the various fabrications—whose association and close contact with troops of the line would assuredly be injurious to both, and would probably lead to troublesome consequences. The ordnance officers who serve at and have charge of the arsenals are not and do not profess to be good artillerists, nor capable instructors in that art. The special skill of the artillerist is not necessary to their appropriate business, and if some of them have acquired that skill in an eminent degree, it has been by close application to the study of the artillerist's art while pursuing their appropriate vocation, and in connection with it. It was the possession of such skill, so acquired, that led the commanding general to avail himself of it during the Mexican war, in assigning the control and management of the siege train. The good of the service and the success of our arms, in his judgment, required that he should make the best use of the professional knowledge and skill in the army, wherever found. It happened to be, in his opinion, in an ordnance officer—the command was assigned to him on this account, and carried with it the troops of his own arm, over which alone he could properly exercise command. It would have been the same if the qualifications of the ordnance officer had been found in one of another arm: and for the same reason and with equal propriety, the siege train might have been assigned to an infantry or a cavalry officer. The good of the service requires the employment of any and all officers in such duties as their peculiar talents and acquirements may best fit them to perform. The commanding general is constituted the judge of the best means to attain the objects of a campaign; all officers of every arm are put at his disposal for that purpose, and in the proper exercise of such judgment no valid complaint can be made of his infringement of any officer's rights: *they* are sunk, for the time being, in the paramount consideration of the public good. The case of the mountain howitzer battery was a peculiar one, such as cannot, it is thought, occur again. It was, however, but a short time in charge of the ordnance, and was transferred to the voltigeurs. Of its use and command after this transfer from the ordnance, no complaint seems to be made by the artillery. The selection of an ordnance officer to serve the mortar at Monterey was made by the commanding general, contrary to the wishes and advice of the chief ordnance officer of the army. It would seem that, in this instance, the ordnance officer, although *quite competent in his own*

sphere of business, was not so good an artillerist as an officer belonging to that arm. Here is one instance, at least, of an artillery officer with more professional skill than the ordnance officer, notwithstanding that the latter had been for a long time stationed at an arsenal, and the former never. It shows that these stations do not necessarily impart the skill, and that it may be acquired without them.

A passing remark may be due to what is said in one of the memorials of the artillery in regard to their being deprived of the use of the carriages at the forts, which are "packed away in ordnance store-rooms," and of the "grates for hot-shot firing, which are closed against" them. Carriages and all other ordnance supplies at the forts are, it is well known to the artillery, not at all under the control of the Ordnance Department, but exclusively under that of the commanding officers of the forts. The Ordnance Department has no charge of any store-house at any fort—its authority and control extend not beyond the store-houses and supplies at the arsenals. Grates for heating shot are a part of the fort; they are constructed by the engineers, and, it is supposed, are turned over by them, with the finished forts, to the care of the garrisons.

In the foregoing remarks the following points are believed to have been established, viz: that the want of professional knowledge and skill on the part of the artillery, admitted by themselves and only therefore assumed, is not due in any degree to the separate organization of the Ordnance Department; that, on the contrary, there was not only less of that knowledge and skill prior to the separation, but much fewer, indeed no means for acquiring it; that the existence of the Ordnance Department, as a separate branch of the military service, is required by the best interests of the army and of the country, as has been fully proved by actual experience and indisputable facts; that the fabrication and use of arms and munitions of war should be different and distinct branches of the service; and that the stationing of artillery companies at the arsenals will be injurious to the service of these establishments, without affording any professional benefits to the artillery.

The question now comes, What is the best method of correcting the evil complained of by the artillery, and for which they ask such remedy as the case may demand? The answer is: The establishment of a school for artillery practice and instruction at Fort Monroe, Virginia, where the artillery shall be concentrated in rotation, by battalions at least, better by regiments, to practice artillery-firing and maneuvers, to do duty as artillery exclusively, and to go through a course of instruction in the laboratory. Fort Monroe is the best and, it is believed, the only place where a proper range can be had for artillery practice; *there* are already casemates for direct and flank fires, ramparts for barbette cannon and mortar batteries—traversing circles ready laid—grates for heating shot and a laboratory with its tools and supplies—constituting a large portion of the apparatus necessary for such a school. The remainder of the school apparatus, such as siege carriages, implements, equipments and tools, stone and other mortars with their beds and platforms—columbiads and seacoast howitzers, both casemate and barbette—mountain and prairie artillery—war and signal rockets, and whatever else the artillerist may be called on to use, can be supplied, to furnish the school with full and complete means for instruction. Let a certain portion of the artillery—the greater that can be spared for the purpose from other duties the better—be sent to this school for instruction, and at the same time to constitute the garrison of the fort. Let them have no infantry arms—nothing but cannon, except artillery muskets and swords for

guard duty. Let each detail see, handle, and use, daily, some of the material of their peculiar arm, until they acquire a practical familiarity with them all; and let this course be continued in rotation until all the artillery have had the benefit of this practical instruction. So long as the artillery continues, as it has been for years past, broken up into separate detachments of single companies, or, at most, of three or four, and scattered about among the forts, it will be impracticable to furnish them the means of becoming practically familiar with all the numerous articles constituting the material of that arm. To supply a single school with a complete apparatus will be expensive, but that which will be requisite for the instruction of *one company* will answer as well for *a regiment*. This is the reason why there should be but one school—and *not schools*—of instruction and practice, independently of other obvious advantages of the occasional concentration of regiments. It may be illustrated by considering the greater economy, and many other advantages, of one national military academy to instruct cadets from all parts of the Union instead of one for each geographical section, or one for each State, for the exclusive instruction of the cadets of that section or State. But the advantages of one school instead of several are too obvious to require argument or illustration to prove or elucidate them. The proper time for each detail to remain at the school cannot be exactly told; it cannot be ascertained until the school shall have gone into full and regular operation. The officers are, *of course*, familiar with the *theory* of their profession: that can be acquired from books, readily, by any one who has had the advantage of a West Point education. They will only require to have the school apparatus put into their possession, to enable them to instruct the rank and file—and starting with this advantage of familiar theoretical knowledge on the part of the officers, it is supposed that a course of instruction of one year's duration will impart a very fair practical acquaintance with their duties, to each detail. It cannot occupy more than two years.

Since the appearance of the circular letters, on which the foregoing remarks were made, a pamphlet on the same subject has been published, entitled "Memoir on the United States Artillery." That pamphlet is evidently intended as a sequence to the circular letters—has in view the same object, and is designed to adduce arguments in favor of the suggestions in the letters. It goes much more into detail; professing to give a history of the artillery from 1821, and to show why the artillery is not efficient under its present organization; it also proposes a new and essentially different organization for that arm, materially affecting the national interest as regards its military establishment. Although the remarks on the circular letters answer and refute all the material statements and arguments of the memoir, so far as they relate to the present separate organization of the Ordnance Department; still, there are many things in this pamphlet, founded in error, both of fact and deduction, calculated to mislead the public mind, and to exercise an influence injurious to many officers of the army, to an important department of military service, and to the military efficiency not only of the army but of the nation. Such statements, scattered by means of the press among those unacquainted with the true facts of the subject, and not having the means or the leisure to acquire right information concerning it, seem to call for an exposition of their errors and fallacies. Truth demands such an exposition, lest error unnoticed may be mistaken for it, and mislead to mischievous and pernicious results.

The main error, which runs throughout the whole pamphlet, is the assumption that the Ordnance Department is a part of the *artillery*; that

its whole business is to minister to the wants of the *artillery*, and that the object of an Ordnance Department is to provide munitions and material of war for the *artillery*.

Thus the memoir speaks of "the two branches of the artillery (meaning the artillery and the Ordnance Department) being disunited and their interests antagonistic" (p. 8), of the Ordnance Department as "an important branch of the artillery" (p. 9), "the two departments of the artillery were separated, their duties distinct, their interests to a certain degree antagonistic" (p. 10), "the artillery is now divided into two separate and rival branches, antagonistic in their interests" (p. 11). This error was noticed and refuted in the remarks on the circular letters. The Ordnance Department, as part of the standing army, is no more connected with the artillery than it is with the infantry, cavalry, or any other armed corps. Its business, in that relation, is to provide and make arms, with all appendages and materials required for their efficient use, for all the corps of the army alike. As a part of the national military establishment its business, and by far the most laborious and important part of it, is to arm and equip the militia of the country, and to provide and preserve the means of arming the nation whenever occasion may require it. As the argument in favor of that part of the plan proposed in the memoir which merges the ordnance in the artillery is based on the error which has thus been exposed and refuted, it of course falls with it.

The memoir also speaks of the "antagonistic interests" of the artillery and ordnance, and from its frequent repetition this seems to be a favorite phrase with the author. In what way the interests of the two branches of the military service are different, or "antagonistic," it is difficult to imagine. It is certainly the interest of the Ordnance Department to discharge all its duties in such manner as will, in all respects, best subserve the interests of the country, and in this way it strives to work for *its* interest. It is supposed to be the true interest of the artillery to do the same, and unless the author of the memoir thinks it has some more important interest "antagonistic" to this, those of the two corps must be identical. It is not possible to conceive where this "antagonism" can exist, unless the memoir may refer to that part of the duties of the Chief of the Ordnance Department which requires him to "examine all requisitions for ordnance supplies, and under the direction of the Secretary of War to modify and regulate them in such manner as to curtail all extravagancies, to suit them to the exigencies of the service, to existing appropriations, and to just and proper views of economy; and in the performance of this part of his duty invariably to communicate with the General-in-Chief of the army." In discharging this part of his duty his views sometimes differ from those of the artillery, and of other corps; but the instance is not recollected where he has not been able to convince the General-in-Chief of the army of their propriety, and if this should not be the case, then *his* views would prevail. The Ordnance Department, while it has every disposition to supply all things coming within its province to furnish which are really wanted, whether by the artillery or any other corps, feels bound to curtail all extravagancies, and in so doing believes that it is acting from the best regard to the interests of every branch of the service, and "antagonistic" to none.

The memoir commences by referring to the organization of the military peace establishment of 1821, whereby the Ordnance Department was made a part of the artillery. It entirely omits to state that this merging into one of two corps, whose duties are and ought to be always distinct and separate, was a mere experiment—a departure from the mil-

itary organization which had been previously in existence, on a mere idea, when every means to reduce the military establishment had to be resorted to—that it, among others, would be one of such means which might be tried to see how it would work practically. It states that “the organization was intended to produce under proper administration an accomplished and efficient artillery force. It contained within itself all the necessary elements. Provision was made for the discharge of the duties attaching to the staff of the artillery, the manufacture of arms and munitions of war, their preparation for use, preservation, &c.” No doubt it was *intended* to work well, but the result did not answer the intention. If the organization contained *all* the necessary elements, how can the artillery answer to the country for failure, when it had “all the necessary elements” in its own hands—all under its own control. It is certainly a new idea in the military world that “the *manufacture* of arms and munitions of war” is a duty attaching to the artillery or any part of it. The artillery is designed to be, and, it is thought, claims to be, essentially a fighting corps. It would seem that the author of the “Memoir” wishes to convert it or a part of it into a non-combatant portion of the military establishment. When was it ever made the duty of the artillery to manufacture muskets, accouterments, and cartridges for the infantry, or sabers and pistols for the dragoons? And yet these articles are included in the terms “arms and munitions of war.” Even when the Ordnance Department was merged in the artillery, it was necessary, and was provided by law, to detach the officers assigned to such duties from the artillery, while so employed, and to make them “subject only to the orders of the War Department.” (Sec. 4, act of March 2, 1821.) They were, for the time being, not artillery, but ordnance officers, just as distinct from the artillery as are the officers of the present Ordnance Corps.

The various beneficial effects stated in the memoir to have been *expected* from the merging of the Ordnance Department in the artillery, it is admitted “have not been fulfilled.” All we have gained by the organization of 1821 is “experience of its defects”; and, the memoir adds, “the necessary knowledge for correcting them.” Now, how does the memoir propose to use this knowledge? The artillery had “within itself all the necessary elements” for fulfilling what was expected of it. From these it achieved nothing but “experience of the defects” of the plan which put those elements within its control, “and the necessary knowledge for correcting them.” And yet it is proposed gravely to go back to that plan, so far as the organization of the Ordnance Department is concerned, which has failed to fulfill every expectation of benefit, and has furnished nothing but experience of its defects. ’Tis true it is proposed, also, to modify the plan somewhat as concerns the artillery—the essential modification consisting in destroying unceremoniously the grades of one half the field-officers, and bringing up the juniors to higher grades—creating for the purpose twenty-eight additional captaincies, with a new grade, never before heard of in our service, of second captains, who are nevertheless to “rank with other captains of the army according to date of first commission as captain, the distinction being only for the corps”; in other words, to give *first lieutenants* of artillery a new name, and make them rank with other *captains* in the army. This is a wholesale mode of brevetting which beats anything that was seen even during the Mexican war.

In order to prepare the way for getting rid of the grades of field officers, an attack is made on them, at page 9 of the memoir, where the senior officers are referred to as, with few exceptions, “men entirely unfitted for the higher duties of their arm,” and “little interested in a service

which they did not understand, and the importance of which they could not appreciate." Is it necessary for the object of the author of this memoir thus to undertake by one stroke of his pen to cast a slur on all his seniors, "with few exceptions," and to pronounce them too stupid to understand or appreciate a service in which their lives have been passed; and who, at the same time, has so good an opinion of the juniors of artillery as to propose the creation of new offices for their advancement, and of a new grade to put them at once on a level in rank with other officers of the army who have attained their grades after long and faithful service? The senior officers of artillery have experience. They probably remember what the artillery was when there was no separate Ordnance Department—how little knowledge and skill in its appropriate duties it then possessed, and how impossible it was to extricate it from its then low estate, for the want of the necessary *material* for instruction. They have seen the vast improvement which has taken place in that material since the revival of the Ordnance Department—they now perceive that the artillery has all the means for instruction, and wants but the time and disposition to apply those means, to make itself accomplished in all things belonging to its own duties—and they probably do not lend their countenance to a plan, the utter failure and evil results of which they have witnessed. They are probably not willing to advocate a change, although it may advance the interests of the junior members of their arm, which experience tells them is fraught with certain mischief and injury to the entire military service of the country.

A leading feature in the proposed plan is the creation of the office of brigadier-general of artillery, "to be selected from the officers of the corps with reference to talent and administrative capacity. He is to command and administer all the affairs of the corps in whatever pertains to its instruction and equipment, including the duties now entrusted to the Chief of Ordnance." As the senior officers have before been pronounced, "with few exceptions," entirely unfitted and incompetent, the selection of brigadier must either be confined to the few exceptions, or thrown open to the whole corps, as seems to be the plan—the selection being required to be made with reference to "talent and administrative capacity" solely, and without regard to experience or length of service. As the selection is limited to the officers of the corps, it will be a very difficult matter to ascertain which of them has most "talent and administrative capacity" for all these duties, none having had the opportunity to show whether they do or not possess them. No doubt there will be many candidates, all possessing talent and capacity in an eminent degree, in their own estimation—so many indeed that it will be a mere chance if the right one is selected—and the office will after all be filled by him who can command most influence with the appointing power, and the "talent and administrative capacity," so plausible in theory, will probably result practically in selection by favoritism. Whoever may be the favored candidate for this high office, he has more duty assigned to him than he can properly attend to. Besides the multifarious and important duties of the Chief of the Ordnance Department, full enough to occupy the whole time and attention of one officer, he has assigned to him by the proposed plan some of the most important duties of the Adjutant-General and of the present colonels of artillery. The latter have been disposed of by the memoir as ignorant of artillery duties and too stupid to learn; it may therefore be considered right to assign their duties to some one else. But does the Adjutant-General come also under the same category? It is generally conceded that he both understands his duties and discharges them faithfully. Is he suspected of having interests

"antagonistic" to the artillery? The contrary is generally thought. Or is he classed with the senior officers stated in the memoir to be "old, worn out, without sufficient education as artillerists," and like that "third" colonel of artillery, disqualified, because he entered the service "as a marine"? (See p. 10 of the memoir.)

One of the merits, claimed for the plan proposed, is its economy, and an elaborate calculation is entered into to show how many dollars and cents it will save. Besides this calculation being wrong, at least in one instance, viz, nearly doubling the number of ordnance men in service, and also in charging the ordnance sergeants as part of the Ordnance Department, it needs "no ghost to come from the grave" to inform us that by reducing the army in numbers, the expenditures for pay, subsistence, and clothing will also be reduced; *disbanding* the army would reduce these expenses to nothing. But it by no means follows that a saving in this way is true economy. That consists not so much in reducing the amount of expenditures, as in applying them to proper objects, and securing the greatest amount of public benefit for the money expended.

Of the other details of the proposed plan of organization, that relating to an artillery school of practice is good: such a school might be established to advantage, now that there is a separate ordnance corps to furnish the proper school apparatus.

That relating to promotion is nothing new.

To station artillery troops at armories and arsenals is evidently an idea of those who do not understand the character or operations of those establishments. The mere placing of a single officer at the armories excited great jealousy against the military. It was regarded by many as an encroachment of the military authority on the civil, and nothing but the greatest forbearance and circumspection of the officers so assigned, and the plainest proof that no military control was assumed, has permitted the plan to stand. To station artillery *troops* there, would be fraught with great mischief and injury, and would be attended with not a single benefit.

The artillery board to help the brigadier-general is another part of the plan. This board is to do what the present Ordnance Board does. It is not assumed that the present board is deficient in any way. Indeed, it cannot be with any truth; and there are few, if any, in the army who will venture the assertion that a more competent set of officers for such duties can be found in its ranks. Then why change them? But besides these duties they are to prescribe the qualifications for promotion, the course of studies to be pursued, &c., and are to examine the lieutenants for promotion to captaincies. The members of the board being "selected without regard to rank from the officers of the corps by the chief of artillery," this will place the promotion of the lieutenants, in a measure, under the control of that officer. Moreover, this board, chosen without regard to rank, would most likely consist entirely, or of a majority, of lieutenants, and thus have the examination of themselves by themselves to determine their fitness for promotion; a supposition not improbable if the memoir is good authority concerning the qualifications of the senior officers. The present rule of promotion in the artillery, which has existed ever since the organization of the army, has been proved by experience to work well. The new-fangled one proposes to depart from this well-tried rule, to make an experiment, the result of which, to say the least of it, must be of doubtful utility, and which is obnoxious to the very serious objection of advancement by favoritism.

While the memoir is under review it may be well to point out *some* of

the most glaring misstatements and discolorings of facts with which it abounds, and also some of the statements assumed as facts which contradict others as positively assumed. To notice the whole of them would involve the necessity of quoting almost the entire memoir; only a few will, therefore, be pointed out. And first, the cause of the failure of the organization of 1821 is assumed to be the want of a "directing head to the artillery." The true cause was the want of proper material for the use and instruction of the artillery, resulting from the want of that department of the military service whose special business it was to provide it.

The statement at page 5 of the memoir professing to give an account of the successive changes in the Ordnance Department from 1827 to the present time, is disingenuous and wrong in fact. It alleges that a few artillery officers, one lieutenant-colonel and four supernumerary captains, for their own gain, obtained a separate organization, and when they had done that, "the inevitable instinct of such bodies to aggrandizement sprung up," whereby the Ordnance Department was increased in 1838 at the expense of the artillery (which by the way was increased at the same time), and again in 1847, under "pretext" of the war with Mexico, until it now "contains 36 officers, 15 military storekeepers, 53 ordnance sergeants, and an unlimited number of enlisted men, and has gradually and almost entirely usurped the functions of the artillery." It is difficult to conceive how so many misstatements could be manufactured out of the facts as they really occurred of the changes in the organization of the Ordnance Department. The separate organization of 1832 was made by an act of Congress, passed and approved after four successive Secretaries of War had recommended it, and after the measure had been fully examined and freely discussed. It is not at all probable that the legislative power was influenced to adopt the measure by a consideration of the gain to particular officers which might ensue. On the contrary, it is well known that the separate organization of 1832 was brought about entirely by the *bad* working of the plan of 1821 (the union of the two distinct branches, ordnance and artillery, into one), which was so plainly proved as to make the change necessary for the public interest. The increase in 1838 was also by act of Congress entitled "An act to increase the present military establishment," &c., which gave a distinct and separate organization, and an increase, not to the Ordnance Department alone, but also to the other departments and corps of the army, including the artillery and infantry. The main object of these separate organizations, it is well known, was to keep officers of artillery and infantry with their regiments, the evils of detaching them for duty in the Quartermaster's, Engineer's, Adjutant-General's, Subsistence, and Ordnance Departments, having been seriously felt and much complained of. Indeed, this is pointedly referred to in the memoir, although directly contradictory to its main scope and object, at page 25, where it is stated to be "as important to retain the instructed artillery officer in the corps (of artillery) as the soldier," in order "to turn the attention of the artillery officers entirely to their own duties." For the last increase, in 1847, the war with Mexico (says the memoir) was made the "pretext." A state of war is generally supposed to be quite a sufficient reason for increasing every branch of the military establishment, without the necessity of resorting to a "pretext," which means an ostensible motive assumed as a cover for the real one. If the war was but the pretext it is much to be regretted that the author of the memoir has not given the real motive which induced the legislative authority to increase the Ordnance Department; perhaps the influence which operated on

that authority is intended to be stated in the phrase "the inevitable instinct of such bodies to aggrandizement." If so, that instinct must have been possessed by the army very generally during the war with Mexico, for that war was made the "pretext" for increasing the military force to a great extent in more of its branches than the ordnance. The statement of the present force of the Ordnance Department is also wrong. The 53 ordnance sergeants "form no part of the Ordnance Department" (Report of the Adjutant-General to the Secretary of War, September 6, 1850), and instead of "an unlimited number of enlisted men," it is limited to 250, and, in point of fact, has less. It is further asserted that the Ordnance Department "has gradually and almost entirely usurped the functions of the artillery, and that in the war with Mexico it assumed the legitimate duties of the artillery in the field." The law makes it the duty of the Ordnance Department to inspect and prove all pieces of ordnance, cannon-balls, shot, shells, small-arms, side-arms, and equipments, procured for the use of the *armies* of the United States, and to direct the construction of all cannon and carriages, and every implement and apparatus for ordnance, and all ammunition wagons, traveling forges, and artificers' wagons, the inspection and proving of powder, and the preparation of all kinds of ammunition and ordnance stores. It also places the national armories and arsenals under the direction of the Ordnance Department. These duties are performed by that department in obedience to law. In performing them it exercises its legitimate functions, and if there be any ground for the charge of usurpation, it is in the attempt by the artillery in this memoir to usurp and claim for itself the legitimate functions of the ordnance. As regards its "assuming the legitimate duties of the artillery in the field," the ordnance merely obeyed the orders of the General-in-Chief by performing the duties he assigned them. They assumed nothing, unless obedience to the orders of their military superior be assumption. These charges against the Ordnance Department of usurpation and assumption thus resolve themselves into compliance with law and obedience to orders.

The next misstatement to be noticed in this review, is that which occurs at page 8, as follows: "Artillery companies were frequently detailed during the war, as at Vera Cruz and Chapultepec, to serve the heavy batteries, in which duty they earned much but received little credit, for the batteries themselves were in the hands of ordnance officers, and care was taken that to them the chief glories of the heavy artillery should be given." Now the awarding of glories to particular corps or persons, for the victories at the places mentioned, was done by the reports of the General-in-Chief of the army. Was General Scott so prejudiced against the artillery as to give another corps credit for what they earned? Was he so regardless of truth as to report facts falsely, and to take care to do so? Or so careless as to permit it to be done by others? And where was the chief of artillery? Did he make no effort to give the Commanding General correct information as to the share of glory earned by and due to his own corps? This is a serious attack on the justice and veracity of General Scott. They have heretofore, it is believed, been unquestioned, and it becomes him who now attacks them to be well prepared with his proofs to sustain such an attack—an attack made too, it would seem, in mere wantonness; for, at page 30, when it is deemed necessary for the argument to show the reputation and glory acquired by the artillery, "reference to official reports of *all* the Mexican battles is invited." The attack is followed up and again repeated, at page 29, by stating that the artillery were excluded from their appropriate duties during the Mexican war, in an "insulting

and contemptuous manner." As the Commanding General alone had the power to exclude or assign duties to the different corps, the insult to and contempt of the artillery here charged must be referred to him in addition to the injustice and want of veracity before charged. It is a weak cause which needs, to sustain it, such unfounded and unjust insinuations.

Again, at page 9, the memoir states, "That department (the ordnance) has gained a high reputation for ability and usefulness in a portion of its peculiar duties, but when called upon to act with or supply artillery troops it has often, either through inability or a want of sympathy with a rival corps, been deficient in rendering the services due from it and expected by the army." So the ordnance has "its peculiar duties"! notwithstanding the reiterated assertions in the memoir that it was only a part of the artillery: that all its duties did and of right ought to pertain to the artillery, and that its separation therefrom was destructive of the unity of that corps. This main argument in favor of the proposed plan of reorganization is thus abandoned; unless it be a part of this plan to dispense with those duties as useless, the performance of which gains for those who do them "a high reputation for ability and usefulness." This acknowledgment of the ability and usefulness of the Ordnance Department, and also the repetition of the compliment, at page 11, where the ordnance officers are said to "have in many respects performed their legitimate functions ably, and to have fulfilled, so far, all that was expected of such a corps," are gratefully received and duly appreciated. It would have hit nearer the mark—indeed in the *bull's eye* of truth—if the "many respects" had been corrected to "all respects." The assertion that the Ordnance Department has been often deficient in rendering the services due from it, is met by a flat contradiction, and the proof is challenged. If it be intended to apply the assertion only to the connected qualification "due from it *and* expected by the army," then, if there has been deficiency, it is owing to unjust and unreasonable expectations. The department has never failed to render the services that could be rightly and reasonably expected from it.

Whoever may read the memoir cannot fail to notice the discrepancies and contradictions of many of the assumed facts. Among these may be given as samples, that, at page 5, the number of enlisted ordnance men (who are declared by law to be "regular troops," act 10th July, 1848) is assumed to be unlimited, while at page 14, the ordnance officers do not serve with troops; also at pages 9 and 10, the senior officers of artillery, with few exceptions, are old and unacquainted with their duties, while at pages 28 and 29, the officers of artillery, with few exceptions, are intelligent men of good military education, possessing the talent, the capacity, and the will to elevate their corps to an equality with the best artillery in the world—an equality, by the way, which it is immediately proved, by a recital of their acts, they already possess. And again, at page 8, the chief glories earned by the heavy artillery, at Vera Cruz and Chapultepec, were given to the ordnance, while at page 30, the official reports of *all* the Mexican battles prove the falsehood of all the charges against the artillery; these charges appearing in the memoir for the first time, never before preferred, and now gotten up apparently for no other purpose than their easy refutation, which immediately follows. There is so palpable a transformation of effect into cause, at page 9, as to deserve notice, if only for the *completeness* of the blunder. It is there stated that the principal *cause* of the failure of the system of 1821 was the organization as a separate body of the Ordnance Department. Now, the failure and insufficiency of the existing system

(that of 1821) was the chief argument in 1832 for the measure then adopted by Congress, viz, the reorganization of the Ordnance Department as a separate branch of the military service. The separate organization was the effect produced by the failure of the system of 1821, and the failure was the *cause* of that reorganization.

The memoir closes with a reference to the great ability, energy, and skill displayed by the artillery during the Mexican war, and the high reputation it gained for itself in this, the only opportunity it has had to test its merits. Its achievements in that war, and the valuable and glorious services it rendered to the country, are well known, and cannot be too much commended. Is it desirable, is it expedient, is it politic, is it likely to conduce to the public interest, to destroy an organization which produced such results? Must the system under which such artillery was trained be abandoned? Must that which has been proved and found good be changed merely to try an experiment, whose success is more than doubtful? Must we abandon a system whose results have been so useful and so glorious, and adopt that proposed in the memoir, similar, yea, almost identical with what experience has proved a signal failure? It is a homely adage, but there is sound sense in it, "let well enough alone;" it commends itself to observance more especially when, as in the present instance, a great public interest is concerned, and our military efficiency as a nation is more than likely to be seriously injured by a departure from it.

REPLY TO THE REVIEW OF THE MEMOIR ON THE UNITED STATES ARTILLERY, FEBRUARY, 1852.

The review of the memoir on the United States Artillery is apparently written by an officer of the Ordnance Department; and its object seems to be to convince its readers that the change of organization recommended for our artillery establishment should not be made, because under the present system the Ordnance Department—one of its branches—is not only very efficient, but, as is claimed, almost perfect. If this claim were proven, it would still leave the main question untouched. If our Ordnance Department were the most accomplished military body in the world, that would be no good reason why our artillery, as a whole, should be the worst. But the claim is not established; our Ordnance Department is imperfect, and the rest of the artillery, excepting the few light batteries, is bad, notwithstanding the knowledge and skill of the officers. The memoir points out many of the imperfections and deficiencies, shows their causes, and proposes a remedy. The organization of the artillery of the best European armies, identical in principle with the one proposed in the memoir for our own, was adopted as the result of long experience of the defects of a system like ours, and with a view not simply to the perfection of one single department, but also to the good of their artillery service as a whole and to the efficiency of their armies. It was recommended by sound reasoning and logical deductions from admitted facts, and the advantages derived from it have been fully equal to all the expectations of its advocates.

Our own Ordnance Department is efficient and useful exactly in proportion as it has appropriated the productions of those foreign services having this organization. So completely is this the case, that even the inventions of its own officers (as appears in the very important case of the shell guns referred to on page 5 of the remarks) cannot be made use of, nor even appreciated by us, until naturalized and perfected by a

foreign service. Our own inventions, it would seem, must be taken at second-hand by ourselves.

The review commences by stating (page 16) that the memoir "is evidently intended as a sequence to the circular letters; has in view the same object, and is designed to adduce arguments in favor of the suggestions in those letters." This is a mistake. The memoir was written long before the appearance of the letters and probably before they were written. Its author had no knowledge whatever of the intention or objects of the authors of the letters, never had any communication with them, either direct or indirect, on the subject, and the objects of the letters and memoir are very different; the letters recommend certain changes in duties under the present organization, the memoir recommends a radical change in the organization itself. It is a very strong proof of the correctness of the data and deductions of the memoir that these artillery officers, separated by hundreds of miles, should have stated so exactly alike the condition of their branch of the service and its causes, that the reviewer tells us "his remarks on the circular letters answer *and refute* (?) all the material statements and arguments of the memoir, so far as they relate to the present separate organization of the Ordnance Department." We will therefore consider the "remarks" as a part of the "review" and refer accordingly.

The reviewer tells us (page 17) that the "main error which runs throughout the whole pamphlet is the assumption that the Ordnance Department is a part of the *artillery*, that its whole business is to minister to the wants of the artillery, and that the object of an ordnance department is to provide munitions and materials of war for the artillery," and he adds, "The Ordnance Department as part of the standing army is no more connected with the artillery than it is with the infantry, cavalry, or any other armed corps."

The portion of the sentence italicised is not to be found nor can it be deduced from anything contained in the memoir, nor, in the instances he cites to sustain the assertion, does he produce one that applies to that portion. It follows, then, that the "main error which runs throughout the pamphlet" is reduced to the "assumption that the Ordnance Department is a part of the artillery." If, therefore, this assumption is shown to be correct, the reviewer admits that the "main error" is satisfactorily disposed of; that his own premises so far are unsound, and his reasoning throughout the review in the "main" fallacious.

We will now show that the Ordnance Department is, theoretically and practically, a part of the artillery.

The term "artillery," in all armies, when used in this connection, embraces the whole of its *personnel*, the troops of all descriptions, and the *staff*, by whatever name that staff may be known; and it is in this sense that the word is used in the memoir. The duties assigned to the Ordnance Department by law are properly and strictly artillery duties, and are recognized as such throughout the "military world." The error of the reviewer lies in the simple fact that in his use of the word he does not give it its proper, professional, and universally received meaning, but quibbles upon the fact that our artillery staff has a distinct organization, under the name of "The Ordnance Department." The meaning he attaches to the word in his use of it is a limited and strictly local one, a meaning that would not be understood out of our own army. He is therefore throughout his whole paper fighting a mere shadow of his own casting, and does not meet the arguments advanced by the memoir, but begs the whole question at issue. The staff of the artillery has in our service a separate organization, under the name of "The Ordnance De-

partment." This fact is fully set forth and deplored throughout the memoir, and it is referred to as the principal cause of the continued inefficiency of the heavy artillery under the regimental organization of 1821. We think that we have now shown that the reviewer has mistaken the meaning of the memoir in its most important point, and that the Ordnance Department is a part of the artillery under another name. We will now furnish such evidence of our correctness, that no one, least of all an ordnance officer, can refuse to receive it as conclusive. In doing so we will refer to authorities accessible to all.

We will commence by giving a translation of the definition of "artillery" as contained in Thiroux's "*Instruction théorique et pratique d'artillerie.*" "The name of artillery is applied to all heavy guns and their dependencies. In a general sense the name artillery is given to the *art* of constructing, employing, and preserving all descriptions of machines and munitions of war; and, finally, *the word 'artillery' is used to designate the body of troops whose duty it is to construct, to preserve, and to distribute every species of arms and munitions of war, and specially to use the 'artillery' properly so called, and to construct the movable bridges necessary for the passage of armies.*" This is what the whole military world understands by artillery, and its first duty is stated to be the performance of the service assigned in our army to the Ordnance Department by law. (See pages 27 and 28 of the review for a list of those duties.)

So far as foreign armies are concerned this settles the question at issue, but it may not satisfy every one as to our own. We therefore extract from a work by Captain Halleck, of our Corps of Engineers. The declaration of an American officer belonging to the highest branch of our service, and wholly disinterested in the matter, should be considered decisive. In his work on "*Military Art and Science,*" published in 1846, he speaks directly and fully to the point. He says: "*The personnel of artillery in modern army organization is divided into four classes: the staff, guards, artificers, and troops.*"

"I. THE STAFF, OR ORDNANCE, *as it is called in our service,* is charged with the construction of all the materials of artillery and the collection of powder and military stores. * * * In our army the *ordnance* is composed of twenty-eight officers of different grades.

"II. ARTILLERY GUARDS.—These in our service are divided into two classes. 1st. *Military storekeepers.* 2d. *Ordnance sergeants.* Both are alike charged with the care and preservation of the artillery, property, and stores at the several garrisons, arsenals, and magazines. *In our army* we have fifty-eight of these guards, viz, fifteen commissioned military storekeepers and forty-three ordnance sergeants. We seldom have more than this number of permanent posts; each can therefore be supplied with an *artillery guard* for the care of the *artillery stores.*

"III. ARTIFICERS.—This class of men are employed in the construction and repairs of military materials. * * * We have 330 of these in our army, viz, 250 *enlisted 'ordnance men'* and 80 artificers attached to the regiments."

We think that this is sufficient to establish the point; but ordnance officers may, just at this time, still be incredulous. We will introduce one more witness, whose evidence they cannot possibly reject. In a work on "*Artillery and Infantry,*" published in 1849, Lieut. C. P. Kingsbury, one of the ablest officers of the Ordnance Department of the United States army, gives the following definition. "The term artillery may be applied to every species of heavy ordnance, and in a general sense implies the art of constructing, preserving, and applying all kinds of machines and munitions of war. *It also refers to the body of troops*

charged with the construction, preservation, and distribution of arms and munitions of war (forming in the service of the United States THE ORDNANCE DEPARTMENT), and particularly the use of heavy ordnance.

In order now to make the subject perfectly clear to the reviewer, we will, in addition, refer him to his own pamphlet for the proof that "ordnance duties" are so necessarily "artillery duties," that practically they cannot be separated. On page 12, notwithstanding the manifest contradiction it involves, he says: The special skill of the artillerist is not necessary to their (the ordnance officers) appropriate business, and if some of them have acquired that skill in an eminent degree it has been by close application to the study of the artillerist's art *while pursuing their appropriate vocation and in connection with it*"; and he goes on to say that it was the possession of that skill "*so acquired*" that caused the commanding general (in Mexico) to give the preference to officers of the Ordnance Department as artillerists over the heads of all the artillery officers.

We think that we have now established, beyond a doubt or cavil, the fact that the Ordnance Department is both theoretically and practically, although under a distinct organization, a part of the artillery, and therefore the "main error" charged as running through the whole memoir is shown to be no error. As the argument of the reviewer against "that part of the plan proposed in the memoir which merges the ordnance in the artillery, is based on an error, which has thus been exposed and refuted, it of course falls with it."

The reviewer does not attempt to show that the proposed organization is wrong in principle, or that it will not produce the good effects expected from it. He simply asserts that all our arms and material are now of better model and quality, and of more perfect finish than they were prior to 1832, and we readily admit it. But he fails to show that this is due in any manner to the separate organization of the Ordnance Department: he merely assumes it. It is impossible that he could show it, for the Ordnance Department existed as a separate body from its first formation in 1812 until 1821, and the very same laws that governed it then govern it now. If the material was bad from 1821 to 1832, it was because the previous separate organization had provided no better. One of its officers indeed, it is now claimed, invented the shell gun referred to in page 5 of the "Remarks," but as the "fabricators" were not the "users," "we could not avail ourselves of their power, and indeed were not aware of it," until a foreign officer, of a service in which the fabricators *are* the users, discovered the gun lying where it had been thrown by as useless, immediately perceived its value, took its dimensions to France, laid the matter before the French "Artillery Board," and the result was that the combined fabricators and users produced from the despised American piece the famous "Paixhan gun," and made it known by that name to the world. Our extremely sagacious *separate* Ordnance Department, *at the head of which stood the original inventor of the gun*, then eagerly seized upon it, and now boasts of it under its old American name of "Columbiad."

The great evils and deficiencies under which the artillery and the army labored in respect to its material prior to 1832, which are brought so prominently forward by the reviewer throughout his pamphlet, and particularly dwelt upon from page 5 to 8 inclusive, were not due to the want of a separate organization of the Ordnance Department. For its organization down to 1821 was, as we have said, a separate one as at present, and all these evils existed side by side with that separate organization during a period of profound peace from 1815 to 1821. All

the conditions of efficiency put forward by the reviewer had therefore existed for six years at least, with the additional one, that a war had just exhibited wherein the evils and deficiencies consisted. Yet the separate Ordnance Department was wholly unequal to the task of correcting them, and showed its incapacity to such an extent that it was merged in the artillery in 1821.

The *personnel* of the organization of that year was originally bad in a professional point of view. A change for the better however gradually took place in this *personnel*; for "the *system* included within itself all the necessary elements," and only required time to develop them. It had already produced, for one thing, many of the officers forming the much praised Ordnance Department of 1838. Had that organization remained unchanged the improvement would have continued, and with increased rapidity and effect, if a single chief had been placed over the whole, with power to make a proper use of all the good elements of the organization, and to guard it, as a chief only could guard it, against adverse extraneous influences.

But unfortunately the artillery staff was increased, separated from the artillery troops, organized as a distinct body, and from that day to this, instead of being, as its staff, the soul of the artillery, it has proved to be an incubus. It has been the principal cause, both directly and indirectly, of the inefficiency of the heavy artillery. By the exertions of one of their own officers—the lamented Ringgold—the light batteries succeeded in escaping, in a great degree, the depressing weight of the department, and rose at once to such a degree of efficiency that their exploits in Mexico astonished the army and the country. What is now left of the light artillery is admirable; but the heavy artillery, excepting the officers, and they have but little practical knowledge of their duties, is detestable. No! the "artillery" owes nothing to a separate Ordnance Department; on the contrary, that department has been a stumbling block in the way of its improvement. Its very existence is felt as a continual drawback to the regiments.

Had the Ordnance Department remained merged in the artillery it is to be supposed that the modern improved material would have been not only introduced, but *used* by the artillery; but that department took under its exclusive control the introduction and supply of the new arms and material; and the great ameliorations effected have consequently not been as yet of the slightest practical benefit to the heavy artillery. The "mortars" and "mortar practice," "the operations of a siege," "the use of a siege train," "the erection of batteries, the fabrication and use of gabions, fascines," &c., and many other equally important artillery duties, a knowledge of which is absolutely essential to an artilleryman, were, we are told, unknown to the troops before the separation of the Ordnance Department—and they are equally unknown to them now. "The artillery were then *nothing* but infantry," and with the exception of the light batteries they are "*nothing* but infantry" now. They will continue to be "*nothing* but infantry" and just as ignorant, practically, of artillery duties as they were then and as they are now, unless the present system, which is *radically* defective, is changed.

So great was this ignorance, an ignorance directly referable to a separate organization of the Ordnance Department, that when artillery companies were detailed, as at Vera Cruz and Chapultepec and elsewhere, to serve the heavy batteries the men were found not only to know nothing of the method of serving the pieces, but the pieces themselves were curiosities. And it is a fact which carries with it irresistible arguments against the further continuance of the organization which pro-

duced it, that the heavy-artillery troops received, not merely in the immediate presence, *but under the actual fire of the enemy*, their very first lessons in the use of the pieces for the special service of which the government had paid and supported them for years. The consequence was that *the officers* were compelled to draw upon their recollections of the limited practical instruction they had received at West Point and to serve the guns themselves, with the little assistance they could get from such men. A good material, the only thing that the present organization boasts, and which was not always furnished, is, under such circumstances, comparatively useless. The efficiency of artillery, says Thiroux, "is entirely subordinate to the intelligence and skill of the cannoneer and to the capacity of the officer who directs it. The most numerous and *perfect* material would lose all its value in unpracticed hands. How many facts can we not cite to support this assertion?"

To what, it may then be asked, if not to the separation of the Ordnance Department, is due the great improvement in our material since that separation? It is due, in the first place, to the fact that the arms and material of all descriptions of the present models were not, until about that time, introduced into the foreign services, to which the department has been indebted for all its real improvements; and secondly to the greater perfection to which all the mechanical arts have been carried; the superiority of the machinery of the present day over that in use a quarter of a century ago, and the more general application of it. The improved material would have been introduced into our service, even if the Ordnance Department had not been separated and the first steps had already been taken for its introduction before that separation took place. The nicety of finish, due to the use of machinery, would also have been secured, but it is of no great practical importance. That "the parts of our small-arms are thrown promiscuously together and the complete and perfect arm is made up by taking the parts from the heap as they come to hand" is much more curious than useful. It enables a few perfect muskets to be made up from a greater number of injured ones, it is true, but practically this is of no great importance. The reviewer could hardly have seen service in the field or he would have known that when an army takes the field the men all go armed; that casualties remove men faster than they remove muskets, and that there is, under ordinary circumstances, a surplus of perfect arms. We use machinery to a greater extent than do the French, with whom hand labor is cheap, and hence the greater accuracy to which these little niceties are due. When it comes to the cost of the musket the advantage is decidedly with the French.

The highest and lowest prices of the American musket complete for the year 1849, due almost entirely to the difference of machinery at our two arsenals, were \$12.72 and \$9.87. Those of the French musket, of the same year, which is just as serviceable, were \$6.37 and \$6.02. These last prices are given from a report of Major Hagner, of the Ordnance Department, to his chief, dated October 25, 1849. If it can be found on the files of the department, the reviewer is referred to it for further *proof* that our "ordnance duties" are "artillery duties"; for a complete refutation of his statement, that "It is certainly a new idea in the military world that the manufacture of arms and munitions of war is a duty attached to the artillery, *or any part of it*," and for a decisive answer to his question, "When was it ever made the duty of the artillery to manufacture muskets, accouterments, and cartridges for the infantry, or sabers and pistols for the cavalry?"

The reason given by the reviewer (page 10) why the users should not fabricate, proves, we think, just the reverse. "It is natural for all

men," he says, "to look with favor on their own works, and to view any defects therein with lenity. They will pass over imperfections of their own creating, which as the works of others they would strictly criticise and condemn." For this very reason we think that those who use should fabricate. They would be more apt to correct faults they have themselves discovered, and the consequences of which they must bear, than to acknowledge errors charged against them by others. We know that this is the operation of the principle on the Ordnance Department. The illustration of the "principle" on page 11, if carried out, proves unfortunate for the reviewer. It only shows that it is not advisable in all cases to unite the fabricators and users. As, in the navy after the war of 1812, those who built ships and those who fought their guns were the same, so in the army those who built the forts, and those who fought their guns were once the same, as our "artillerists and engineers" formed a single corps. In both cases these functions have been separated, and good, rather than evil, has resulted. But the *armaments*, the subject of our discussion, are in both services supplied by an Ordnance Department. That of the army is separate—that of the navy united with the combatants. Can the reviewer assert that that of the navy is less efficient than that of the army, or that it supplies an inferior material?

That it is an advantage to unite the fabricators and users of artillery has been proved by long experience. "For a long period," says Thiroux, "the construction of artillery was left to those who, not using the machines, could be guided only by a blind routine. This disadvantage being discovered, the construction of the material was given to those *who were to use it*, and immediately a sensible improvement was remarked." "All officers of the arm are instructed in all the different duties of artillery, and are thus qualified to command the troops, to direct the establishments, and to contribute in perfecting the material of which they have personally experienced the advantages and inconveniences." The French carry out the principle strictly, and we will give one instance. One of their national foundries is at Strasbourg. In 1848-'9 it was turning out thirty bronze field pieces (guns and howitzers) per month, and the whole of the work was done, with the exception of two head workmen, by a company of artillery. This company had its battery with it, and was equipped in every respect for service. It was under the command of its proper captain, who with his subalterns superintended the work. The pieces were even bored and turned by machinery put in motion by the company horses. Yet the company was always ready to parade at short notice.

It is evident that the union of the ordnance and artillery would result in a benefit. Small-arms will take care of themselves. The demand for them is universal—and the practice and use of them equally so. Supply and demand, competition, the market, &c., will take care of guns and pistols, both in respect to quality and cost. There is a large consumption of these articles in time of peace. Still it is perhaps better to have them prepared for the army by public establishments under direction of the artillery. At the same time, an ordnance or artillery corps would be by no means indispensable to the public supply of small arms. How different is the case with artillery! Whilst its material and effects are connected by a higher science and much more intricate relations, and whilst there is *consequently* much more need of practice, there is by private individuals absolutely no practice at all, and government must organize a body specially for that purpose. What an absurdity, then, after doing this, to make a suicidal separation and antagonism between the practisers and

those who are to use the results of the practice in forming and fashioning the material. The material should be the offspring of much practice, viewed through the medium of high science and theory. But the rivalry of two corps tends to suppress all practice. There is no such thing as getting models settled or fixed: the idea is in constant contradiction to the nature of things. How widespread and ramified is often the influence of the change of a single element upon all the others of a system and upon the system itself. It is only by a single corps, so united as to remove, as far as possible, all human jealousies and rivalries, that that watch and study of all the matters embraced in this complex subject can be kept up, so that it will maintain our artillery on a level with the science and mechanical improvements of the age.

The reviewer appeals (page 6) to those who remember the condition of the artillery when there was no separate organization of the Ordnance Department "to say whether the degree of knowledge and skill now *commonly* possessed does not surpass those of any (even the most accomplished) officer of that time." We will admit this if desired. It acknowledges all, and more than we have claimed for the present officers of artillery. As General Scott, the adjutant-general, the inventor of the columbiad, the present chief, all the field officers, and two-thirds of the captains of ordnance were officers of artillery at "that time," it follows that the knowledge and skill now *commonly* possessed by artillery officers is so surpassing that no possible harm can result, in any sense, from the reunion of the two branches of the artillery.

For the possession of this greater degree of knowledge and skill, we have always heretofore considered ourselves indebted to the Military Academy, but we must have been laboring under a great mistake, a mistake however shared by the army and the country; for we are now assured by the reviewer that this, too, is one of the results of the separate organization of the Ordnance Department. No doubt this great benefit, if really due to the Ordnance Department, would constitute a strong claim upon the country for any position it could desire to occupy, but here as elsewhere the reviewer fails to show such a relation between cause and effect as would authorize us to receive his conclusions as established facts. We are by no means willing to admit that the knowledge and skill of the artillery officers is due to the separated condition of the Ordnance Department, rather than to the Military Academy—and he makes out no better case as to the material. He does not prove, and, as we have shown, cannot prove, that there is anything inherent in the separate organization to which we can refer the improvement of the material, which was not possessed by the artillery previously to the separation, and which would not be possessed by the artillery after the proposed union. The *personnel* has greatly improved, but that is due to the Military Academy, and, so far as his argument is concerned, he might as well have referred the improvement of the material to the Asiatic cholera of 1832 as to the separate organization established in that year.

The truth is, that the reviewer, having admitted the high qualifications of the present officers of artillery, could have hoped to sustain his position by but one argument, and that he has failed to use. He should have based it on the recognized principle that a division of labor secures excellence in each department. Upon this principle alone could he have attributed the perfection of our material to a separate and distinct organization of the Ordnance Department, and to this alone could he have referred the superiority of the American arms in that "military museum," the "*Musée des armes* at Paris," for foreign armies have no *divided* artillery. By the way, does not the reviewer here refer to the

collection of foreign arms exhibited at the *Musée DE L'ARTILLERIE* in Paris? How is it that he makes such a mistake in the name? It is the *Musée de l'Artillerie* that contains the foreign arms, amongst which those of the United States are found.

This argument may have been purposely neglected, however, as in this case it would have but little force. As at present organized there is no division of labor for the artillery regiments—they are artillery, cavalry, and infantry, by turns, and are consequently not of the best in any capacity. If there must be an interchange of duties, it would be better that the ordnance and artillery should be reunited to the advantage of both than that the artillery, infantry, and cavalry should be mixed up, as they now are, to the injury of all.

But, to do the reviewer justice, we must say that he does not depend upon his arguments. Feeling that his cause cannot be sustained by reason, and that it is sinking under him, he calls lustily upon the bystanders for help, and by appealing to their passions endeavors to secure their assistance. He appeals to the commanding general by name, and tells General Scott that the memoir charges him with “injustice” and a “want of veracity.” The assistance of the Adjutant-General is invoked upon the ground that he is to be deprived of some of his most important duties, and that it is intimated that he is “old, worn-out” and moreover “disqualified,” being “a marine.” The grievous wrongs of the senior officers of artillery are not forgotten. They are told that the memoir pronounces them “stupid,” and is trying to cast a “slur upon all” of them “with few exceptions”; whilst the captains of cavalry and infantry, “who have obtained their grades after a long and faithful service” of from *six to ten years*, are warned that an attempt is being made “to place at once on a level with them” a set of youthful lieutenants of artillery who have not yet served more than *fourteen*. This is too bad. Considering how sorely he needs it, we would not object to his asking a moderate amount of assistance, but to call upon the whole army, general, general staff, artillery, infantry, dragoons, and riflemen to help demolish an unfortunate, whose errors he has already *refuted*, is passing all the bounds of reason. Truly it is a weak cause which needs to sustain it so much help from without.

But let us examine the grounds of some of these appeals. That to the commanding general has no foundation, excepting in the sensitive fears of the reviewer for General Scott's reputation. Here, again, the conclusion does not necessarily follow from the premises, although much ingenuity is exhibited in constructing the argument. No one, probably, has ever heard before that the General-in-Chief is the only “fountain of honor” in this country, nor are his reports looked upon by the army as the sole dispensers of glory.

The heavy artillery on the Vera Cruz line was placed in the hands of ordnance officers; the General-in-Chief believing “that the best knowledge and skill in his army” for the service of artillery was to be found in the Ordnance Department. Artillery troops were frequently called upon to *serve* these heavy batteries in action, and in so serving three officers, Vinton, Drum, and Benjamin, were killed at their guns, to say nothing of those wounded. In distributing the *brerets*, four or five at most of those conferred upon artillery officers can be referred to service with these heavy guns. Of the ordnance officers attached, the chief received three, and the three subalterns two each, for their services, commencing at Vera Cruz, an instance of wholesale rewards to one body unparalleled, we believe, in our history. The services and labors of the artillery company serving the heavy guns at Fort Brown during the

seven days' siege under great disadvantages, due to the Ordnance Department, were infinitely greater than those attaching to the heavy artillery on the southern line. *One* brevet conferred upon its captain was the sole reward of that company. Under these circumstances we are fully justified in stating "that in the service of the heavy batteries throughout the war the artillery troops earned much but received little credit," and that care was taken as to the "chief glories" being secured to the ordnance officers. We refer the reviewer to the annual reports of the Chief of Ordnance for 1847 and 1848 for the proof that other reports than those of the General-in-Chief dealt in the "dangers and glories" of war. Let us not be misunderstood here. We have no disposition to cast reflections upon the character or services of the ordnance officers attached to the siege train—that would be impossible; and no desire to draw comparisons between the services of officers. What we have said has been most unwillingly forced from us, to repel an attempt to discredit our assertions and the labored efforts to excite against us the personal ill-will of our superior officers. We will refer to the subject again in another connection.

As to the "Adjutant-General," that officer is "lugged in by the head and shoulders" without, apparently, the slightest provocation on his part, unless his known endeavors to secure to the artillery their rights and to restrict the ordnance to their duties, have so roused the ire of the reviewer as to cause him to threaten an attack on his character in case the Adjutant-General will not come to the rescue. There is nothing proposed in the memoir that is intended to, or would, interfere with his duties, nor is he even referred to directly or indirectly. The recruiting of the corps, which the reviewer perhaps had in view, if assigned to the chief of artillery, would give him the same powers as are now possessed by colonels of regiments and the Chief of Ordnance, who are the superintendents of the recruiting establishments of their own corps. But does the reviewer consider that there is anything in being a "marine" that of itself disqualifies an officer for any position? We judge from his contemptuous expression that he looks upon the bulk of the army as "nothing but infantry," and here he seems to attach as little importance to the marines. Perhaps his ideas are that the artillery are "*nothing*—but infantry"—that the marines are *nothing*—but marines; and may we not add the favorite article of the ordnance creed, that the Ordnance Department is *par excellence* artillery.

As to the attempt to silence the writer of the memoir by threatening the possible consequences of the enmity of General Scott and the Adjutant-General, we will, without remarking upon the taste displayed, simply state that the memoir was written with a view to the improvement of the service, by giving an account of its real condition, and of the evils growing out of it. As we have not, on the one hand, spared our own corps through favor, neither have we been, nor will we be, on the other hand, influenced by fear.

The grounds upon which the senior officers of artillery are called upon, involve matter of more gravity. On page 9 of the memoir, speaking of the corps as it *existed thirty years ago*, 1821, it is said that "the senior officers of artillery, with few exceptions, *were* men entirely unfitted for the higher duties of their arm. *They felt* little interested in a service which they did not understand, and the importance of which they could not appreciate, and under their control the corps was fast going to ruin, when the school for practice was established to check the decline." That school was established in 1824, and this extract, the meaning of which is as clear as words can make it, cannot therefore be applied to

those who have become senior officers since that time. On page 10, the senior officers of artillery, of 1838 (until which time the artillery regiments had served *exclusively as infantry*), are referred to as men who were "old, worn out, without sufficient education as artillerists, or practice in its service." The reports of the late and present General-in-Chief and of the Adjutant General from year to year, and the several bills to retire them, brought from time to time before Congress, show that the senior officers were, and as a general rule are, "old and worn out," and the reviewer admits that there was no opportunity "for practice in the service" of artillery previously to that time. He goes further and asserts that they were "*nothing but infantry*." And not only that, but that the degree of knowledge and skill possessed by the most accomplished of them, without a single exception, is far surpassed by that now *commonly* possessed by artillery officers.

We certainly never denounced them as so very far inferior to the "juniors of artillery," but to show that there was nothing in the previous education of these officers, as a body, upon which they could draw to supply the want of practice, after joining the artillery; the various arms of service from which the present colonels who entered the corps with them, were drawn, are mentioned, viz: one came from the infantry, a second from the dragoons, a third from the marines, and only one from the old artillery corps. Here is no reflection upon these officers, for they had served "their country in the way which it had pleased that country, through its properly constituted authorities, to direct," as, in the very words of the reviewer, the artillery regiments have done. Whilst so serving, they doubtless performed their duties as honestly, as faithfully, and as zealously as did their regiments, but this honesty, faith, and zeal could not, and did not make, either the senior or junior officers good artillerists: and the memoir simply asserts of one class what it asserts of the other, in this respect.

The attempt to excite feeling against the memoir, by attaching to its words a meaning evidently not intended by its author, and thereby to secure the opposition of these officers to the reforms it advocates, would be sufficiently unfair; but the reviewer does not limit himself to this. We quote from the review, page 21: "In order to prepare the way for getting rid of the grades of field officers, an attack is made on them, at page 9 of the memoir, where the senior officers are referred to as, with few exceptions, 'men entirely unfitted for the higher duties of their arm,' and 'little interested in a service which they did not understand, and the importance of which they could not appreciate.' Is it necessary for the object of the author of this memoir thus to undertake, by one stroke of his pen, to cast a slur on all his seniors, 'with few exceptions,' and to pronounce them too stupid to understand or appreciate a service in which their lives have been passed?"

In the first place, no attempt is made to get rid of the grades of field officers: the memoir carefully provides against that. And next, we call attention to the fact, that the reviewer applies to the field officers of 1851, what is said of the field officers of 1821; that the language of the memoir could not so be applied without mutilation, and that the language is so mutilated, by changing the tense and carefully omitting words, which if inserted in the *professed* extract, as they really occur in the memoir, would make mere nonsense of what the reviewer says. That is, he gives fragments of sentences in such manner and in such connection, as to entirely pervert and misrepresent the plain meaning of that portion of the memoir he professes to quote. We ask the reader to compare carefully the foregoing extract from page 9, with the extract professing to

be the same, as given by the reviewer. In this connection we would also refer to page 30 of the review in which the same mistake (?) is made in the same matter. It says, "Whoever may read the memoir cannot fail to notice the discrepancies, and contradictions of many of the assumed facts. Among these may be given as samples * * *—at pages 9 and 10, the senior officers of artillery with few exceptions *are* old and unacquainted with their duties, while at pages 28 and 29—the officers of artillery with few exceptions, *are* intelligent men of good military education." &c. We have shown that at pages 9 and 10 we speak of the senior officers of from fourteen to thirty years ago, and at pages 28 and 29 we speak of the present officers of artillery.

The memoir states that in many respects the ordnance officers have performed their duties ably, "but that the department, when called upon to act with or supply artillery troops, has often, either through inability or a want of sympathy with a rival corps, been deficient in rendering the services due from it and expected by the army." With the compliment the reviewer is not satisfied. He thinks that the "bull's eye" of truth would have been hit if, instead of "many respects," the memoir had read "all respects." It was a desire to hit the bull's eye that prevented the sweeping praise demanded. It would have given the author of the memoir infinite pleasure to have satisfied the inordinate thirst for praise here exhibited, but unfortunately a respect for that bull's eye prevented it. The assertion that the Ordnance Department had been deficient is met by a "flat contradiction" and the "proof challenged," for "if there has been deficiency it is owing to unjust and unreasonable expectations" (page 30). We will give the proofs.

The camp of Corpus Christi was formed in the summer of 1845 with a view to the possible contingency of a war with Mexico. The troops left their camp in the spring of 1846 and fought the battles of Palo Alto and Resaca de la Palma in May. The time given to the Ordnance Department to furnish the artillery and supplies was, therefore, about eight months. The department had been a separate one for fourteen years, or, as the reviewer says, for eight years.

During this time and from 1832 it had been preparing the improved material of which the reviewer boasts. An army of 3,000 men was to be supplied. Here was ample time to do all that could be expected from the Ordnance Department, and the artillery and the army "reasonably" expected that the supplies would be of the very best as to quality and ample as to quantity. Works were thrown up opposite Matamoras and at Point Isabel, and heavy artillery was sent for their armament. This heavy artillery was to be served by artillery troops, and when the day of trial came, I appeal to all who served with that little force to say what was its condition. The guns and their appendages in the fort were *bad* in every respect. The carriages were weak and rotten. There were no tarpaulins, no tompons, no sufficient vent covers, poor handspikes, sponges good for nothing, no priming powder, no quadrant, no spy-glass. The pieces were considered by many officers as more dangerous to the gunners than to the enemy, and the carriages, &c., were of the old Gribeauval pattern, the kind felicitously described by the reviewer—page 5—as "antiquated, with clumsy, unsafe, and unwieldy caissons; and implements and equipments corresponding in inefficient and awkward inferiority to the guns they pertained to." The whole battery was pronounced on its arrival by many officers, some of high rank and character, as shamefully deficient, and all considered it disgraceful, when the government possessed far superior ordnance, to send into the field, where the best was needed, such old and apparently unserviceable guns. One

of them even broke down during its transportation on the level road between Point Isabel and the fort. This was bad enough, but bad as the battery was it was not adequately supplied with ammunition. There were but few rounds to each piece. On the second day of a bombardment which lasted seven, not a shot was returned to the enemy's fire. The ammunition being already more than half expended, the rest was kept for emergencies. Had there been sufficient ammunition, bad as were the guns, the enemy's batteries might have been silenced, at any rate the fighting would not have been all on one side. As it was, after the first day, a few shot were occasionally fired; more to let the enemy know that the garrison held out than with the view of doing him any great damage; and the Mexicans were enabled to plant their batteries and carry on their works under the guns of the fort without the possibility of any effective opposition being made. Not a mortar was supplied to the fort for the siege; after it was over two were brought up from Point Isabel with a limited number of shells and made ready for use the day that General Taylor entered Matamoras. The Ordnance Department on this occasion, "either through inability or a want of sympathy with a rival corps, was deficient in rendering the services due from it and expected by the army," and the expectations were neither "unjust nor unreasonable."

For further particulars on this subject, we refer the reviewer to all who served at Fort Brown during the bombardment. The sufferings and fatigue borne without a murmur, and the steady determination and fortitude exhibited by them under the very trying circumstances in which they were placed, entitles the defense of Fort Brown to be ranked among the most brilliant achievements in our military annals. More than mere bravery was here exhibited. At this time the morale of the enemy, raised to a great height by the capture of Thornton's force, was intact, and the prestige of victory was not then attached to our flag. Great as were the odds against the little garrison, strongly as they felt the certain fate that awaited them if the fort should be carried by storm, and overwhelming as they knew the Mexican army to be, when compared with the small force that met and defeated it at Palo Alto and Resaca de la Palma, their faith in their comrades and themselves never deserted them. Under these trying circumstances they had one great cause of complaint. Pent up, without the possibility of meeting the enemy upon open ground, they formed a target for the practice of Mexican artillerymen, and were unable after the first day* to strike an effective blow in self-defense.

So much for Fort Brown and the way the Ordnance Department performed its duties as regards *its* armament. The force that fought at Palo Alto and Resaca was no better off. The light batteries, organized by the artillery, did their work well, but the two heavy pieces furnished by the Ordnance Department were of the same character as those furnished for Fort Brown. They were turned over to the artillery at the last moment and were drawn by oxen. The pieces furnished for Tampico were of the same class, but fortunately their powers were not tested.

In the early part of 1847 a large portion of the force on the northern line was withdrawn from General Taylor and ordered to Vera Cruz. Two light batteries were attached to this force. The captain of one of them required, to complete his battery for the campaign, a supply of primers, fuses, &c., without which it would have been unfit for service. An ordnance depot had been established at Point Isabel, and upon this he depended. Whilst in camp near the mouth of the Rio Grande, and hourly expecting orders to embark, he received from the depot the arti-

cles for which requisition had been made. They were nearly all utterly unfit for use. So flagrant was this case that General Worth required and received a written report upon the subject. The commander of the battery obtained elsewhere the supplies required.

There was another respect in which the Ordnance Department not only "failed to render the services due from it, and expected by the army," but threw their duties upon artillery officers, and entailed upon them great responsibilities, trouble, and loss. This was caused by the officers of the department being placed on artillery duties to the neglect of their own, and the consequent detail of *artillery* officers to perform *ordnance* duties. The ordnance officers quit the enemy's country at the first opportunity, leaving the business of their department to be closed in many respects by artillery officers, and in one case an artillery officer was obliged to sell at the shortest notice the ordnance supplies left in store that he might accompany the last of the army from Mexico. Sales were effected to a large extent, and the officer not having the facilities of regular disbursing officers at his command, and being compelled, in addition to his ordnance duties, to perform his appropriate ones as the captain of a company, lost, notwithstanding every effort that care and prudence could dictate, a large sum of money, proceeds of such sales, for which we believe he is held accountable by the Ordnance Department to this day. Surely it was rightly and reasonably expected by the whole army that the Ordnance Department should perform its own duties, particularly as it was furnishing officers and men for the service of "siege trains, mountain howitzers, rocket batteries, and mortars." We have mentioned a few instances, enough to make good the charge of the memoir, the proofs and circumstances of all of which can be given to the reviewer if he desires it, and we have more cases at his disposal.

That the Ordnance Department should have provided for the discharge of its own duties before invading the province of the artillery is evident. That it is responsible for the character of the heavy artillery sent to the seat of war and of the supplies, of the excellence of which it claims great credit, none can deny. In the cases mentioned the heavy batteries were furnished for *artillery troops*, and were invariably of the worst character, and all the equipments were of a piece with the batteries. How different was the course of the department when called upon for a siege train to be commanded and used by the ordnance! Then appeared for the first time to the wondering eyes of the army the beautiful and perfect modern material—selected guns, new carriages, new equipments, a perfect outfit, shell guns of a large caliber, an ample supply of the best ammunition! Was the comparatively miserable outfit of the northern line due to the "inability" or "want of sympathy" of the Ordnance Department? Had the artillery been fitted out, as it should have been, in the United States, and as it would have been had not the ordnance been a "separate" branch, we would have had no cause to complain, and the garrison at Fort Brown would not have been reduced to such straits.

We have been forced to make this exposé. The facts cited are well known, and we referred to them in the memoir as mildly as we could, and we regret that a "flat contradiction" should have so indiscreetly called out what it is the interest of the Ordnance Department to keep quiet. Would it not have been more courteous to have called for the proofs before giving the "flat contradiction"?

We are told, at page 12 of the review, that the assignment to an ordnance officer of the siege train "carried with it the troops of his own arm, over which alone he could properly exercise command." The re-

viewer does not say whether the order of the commanding general included the ordnance "troops," but we are left to infer that this great regard to propriety was shown by the Ordnance Department.

It would not be a difficult point to determine which is the most improper: subjecting artillery troops to the command of an ordnance officer, or diverting ordnance men from the duties for which Congress authorized their enlistment. Both improprieties were committed, as we shall soon conclusively show. Artillery officers and men were "improperly" placed under the command of an ordnance officer, and ordnance men were also "improperly" used for purposes not contemplated by law. But the reviewer himself immediately settles this point. He says: "The commanding general is constituted the judge of the best means to attain the objects of a campaign; all officers of every arm are put at his disposal for that purpose, and in the proper exercise of such judgment, no valid complaint can be made of his infringement of any officer's rights; *they* are sunk, for the time being, in the paramount consideration of the public good." Where then would have been the impropriety of placing artillery officers and men under the control of the chief of the train, even if that chief was an ordnance officer? Perhaps, however, the reviewer thinks it would not have been a "proper exercise of judgment." He proceeds: "The case of the mountain howitzer battery was a peculiar one, such as cannot, it is thought, occur again. It was, however, but a short time in charge of the ordnance, and was transferred to the *voltigeurs*." Now, the mountain howitzer battery was in the hands of ordnance officers, and fought by them throughout the campaign, from its commencement at Vera Cruz, to its ending in the city of Mexico; and it was not *transferred*, but, as we will soon show, *attached* to the *voltigeurs*. We would here ask the reviewer what there was so peculiarly unjust in the assignment of this battery to the ordnance, that it "cannot, as is thought, occur again"?

The reviewer proceeds: "The selection of an ordnance officer to serve the mortar at Monterey was made by the commanding general contrary to the wishes and advice of the chief ordnance officer of the army. It would seem that, in this instance, the ordnance officer, although *quite competent in his own sphere of business*, was not so good an artillerist as an officer belonging to that arm. Here is one instance, at least, of an artillery officer with more professional skill than the ordnance officer," &c. Here are again some grave errors. One of them is an ungenerous attack on an officer of his own corps, as it is an attempt to attribute to his alleged ignorance as an artillerist, a fault of his department. More skill *may* have been possessed by the artillery than the ordnance officer, for he was more recently from the Military Academy and his recollections of mortar practice may have been the most vivid; but the deficiency of the ordnance officer, referred to in the "circular letters," was not owing to any supposed want of skill on his part as an artillerist. It arose from the simple fact that there was something lacking "*in his own sphere of business*." The Ordnance Department, through no fault, we believe, of the particular ordnance officer referred to, was here again "deficient in rendering the service due from it and expected by the army"; and it was this very deficiency that caused the contrast to be drawn in the service of the mortar. The department failed to furnish that very necessary appendage to the mortar, its platform, which had been brought as far as Camargo, and left there. When required, the want of this platform was severely felt. The "fabricators," not intending, perhaps, in this case, to be "users," had failed to take the precautions the "users" would have taken, and, under these circumstances, it was, no doubt, "against

the wishes and advice of the chief ordnance officer of the army" that they were ordered to use their own defective material. Afterwards the mortar was given to an artillery officer, and being used in a different place, where the material for a temporary platform was found, the artillery officer constructed one; thus partially supplied the deficiencies of the department, and hence the alleged "more efficient use of the mortar." Here is one of the many instances that have occurred, showing that those who "use" should "at least understand the details" of the fabrication of artillery and its appendages.

We have stated that we would show conclusively that troops not of his own arm, "over which alone he could properly exercise command," were placed under the orders of the ordnance chief of the siege train, and also that the howitzer and rocket battery was *attached*, not *transferred*, to the voltigeurs. We extract from General Scott's report of the capture of Chapultepec. He is speaking of "the officers and corps most distinguished in these brilliant operations."

"In this connection it is but just to recall the decisive effect of the heavy batteries, Nos. 1, 2, 3, and 4, commanded by those excellent officers, Captain Drum, fourth artillery, assisted by Lieutenants Benjamin and Porter, of his own company; Captain Brooks and Lieutenant Anderson, second artillery, assisted by Lieutenant Russell, fourth infantry, a volunteer; Lieutenants Hagner and Stone, of the ordnance, and Lieutenant Andrews, third artillery. The whole superintended by Captain Huger, chief of ordnance with this army—an officer distinguished by every kind of merit. The mountain howitzer battery, under Lieutenant Reno, *of the ordnance*, deserves also to be particularly mentioned. *Attached* to the voltigeurs, it followed the movements of that regiment, and again won applause."

Here we have the composition of the heavy batteries and the acknowledgment that they were of "decisive effect," but with the exception of the chief no distinction is made between officers.

We have stated that care was taken that to the ordnance officers the chief glories of the heavy artillery should be secured. The reviewer says to this, page 28, "Now the awarding of glories to particular corps or persons for the victories at the places mentioned" (Vera Cruz and Chapultepec) "was done by the report of the General-in-Chief of the army. Was General Scott so prejudiced against the artillery as to give another corps credit for what they earned? Was he so regardless of truth as to report facts falsely and to take care to do so? Or so careless as to permit it to be done by others? And where was the chief of artillery? Did he make no effort to give the commanding general correct information as to the share of glory earned by and due to *his own corps*? This is a serious attack on the *justice* and *veracity* of General Scott."

We have seen from General Scott's report that at Chapultepec an ordnance officer was chief of artillery—although "properly" he could command troops of his own arm alone. This answers the two last questions. But in the foregoing extracts the reviewer lays down three propositions: 1st. That the reports of General Scott alone award the glories. 2d. If he means anything, he means that to distinguish in these reports between officers of the two corps, of equal merit, in favor of one to the consequent disadvantage of the other, results necessarily from prejudice, carelessness, or a want of regard to truth. 3d. That the memoir does charge such distinctions, and that it *therefore* charges General Scott with "injustice," and a "want of veracity." These propositions—premises, deductions, and conclusions—are the *reviewer's*, be it remarked, not ours. We have already shown that *we* do not consider the reports of the com-

manding general as awariders of the "chief glories": but the reviewer asserts that they are, and that as a consequence if it can be shown from one of these reports that such a distinction has been made, then General Scott is convicted of injustice and want of veracity. Now at the close of General Scott's report of the capture of Chapultepec and of the city of Mexico, at that part of the report in which it is usual to give the names of the distinguished, we find a sentence awarding particular and distinguished credit to a portion of the officers he had already named as serving with the heavy artillery. The credit is awarded for *artillery service*, and is the only distinction as to their merit made amongst those officers. Here is the extract: "The ordnance officers, Captain Huger, Lieutenants Haguer, Stone, and Reno, were highly effective and *distinguished* at the *several batteries*." Not one of the artillery officers, nor the infantry officer who volunteered, all of whom served as faithfully and as ably with the batteries as did the ordnance officers, is mentioned amongst the select few. It was previously stated, however, that two of them, Captain Drum and Lieutenant Benjamin, were killed, and Lieutenant Porter wounded. No further notice as to distinction on that day is in this case bestowed on the artillery officers.

We leave the reviewer to explain in the best way he can his charge of injustice and want of veracity now fully made out on *his* hypothesis, and suggest the propriety when he travels beyond the record again in search of means of intimidation, of his making sure of the ground he steps on. We now reassert that care was taken that to the ordnance officers the chief glories of the heavy artillery should be secured, and we further assert that, comparing their services with those of the artillery, they were entitled to no pre-eminence.

It is well to notice here what the reviewer says of the "wholesale mode of brevetting which beats anything that was seen even during the Mexican war." This he applies to the proposed increase in the number of captaincies. The reviewer is mistaken. The Mexican war furnishes a precedent exactly in point. Two first lieutenants and eight second lieutenants of ordnance received during the war with Mexico the same kind of brevets—by the same system of increasing the number of officers of certain grades. As to the wholesale "brevetting" of that war, the reviewer is partially right in his disparaging allusion. It is too true that brevets were conferred for Mexican war-services on officers who never heard the whistling of a Mexican bullet. Those conferred on chiefs of departments were unobjectionable in principle. They were tokens of the approbation of the government for *responsible* and meritorious services rendered, and were compliments to the departments as well as to their chiefs. Having vindicated these from the covert sarcasm of the reviewer—who does not sufficiently distinguish between them and that other class, who, as assistants and attachés to these departments, kept safely at home, and thought as seriously of crossing the Styx as the Rio Grande—we will add, that we cannot see a pin's difference between those of this latter class who accepted war brevets for peace services, and those who not receiving them take occasion to sneer at the rank of officers who repeatedly staked their lives against a grade and won. We believe that for both these classes of non-combatants—the receivers, and the sneering non-receivers—the army generally feels a very proper degree of contempt, and since he has considered it proper to introduce this subject, we can see no good reason for the distinction the reviewer would make between them.

The review pronounces many of the assertions of the memoir to be "misstatements"; for instance, "that the war with Mexico was made the

'pretext' for an increase of the Ordnance Department, an unlimited one as to enlisted men, and he says that a pretext means an ostensible motive assumed as a cover for the real one." It was precisely in that sense that we used the word, and we used it advisedly. He says, too, that the 53 ordnance sergeants "form no part of the Ordnance Department" (see sec. 2, act, April 5, 1838); and also that the department instead of the unlimited number of men is limited to 250, and in point of fact has less; also that the money calculations of the memoir are wrong as to ordnance men, as the number given is double the number in service. We gave the right number, 510, but we admit we were wrong in our calculation. Not having access to the rolls of the department we took, in order to be safe, the minimum amount of pay and rations allowed, viz. \$9 per month and one ration per day to each man, whereas the pay ranges from \$9 to \$16 and perhaps more, and mechanics get a ration and a half. The correction shows that we did not charge the full cost of the Ordnance Department. As to the "unlimited number of enlisted men" and the "pretext" for the increase, we give the law upon the subject, a law still unrepealed:

"An act supplemental to an act entitled, 'An act providing for the prosecution of the existing war between the United States and the Republic of Mexico' and for other purposes.

* * * * *

"SEC. 11. *And be it further enacted*, That the colonel or senior officer of the Ordnance Department is authorized to enlist, *for the service of that department*, as many master armorers, master carriage-makers, master blacksmiths, artificers, armorers, carriage-makers, blacksmiths, and laborers, as the public service, in his judgment, under the directions of the Secretary for the Department of War, may require.

"*Approved, June 18, 1846.*"

The object of Congress in granting this increase is plainly indicated by the care with which the law enumerates the description of men who may be enlisted under it. They were to consist exclusively of mechanics and laborers—not soldiers—and they were granted expressly for the wants of the Ordnance Department, the duties of which department are clearly expressed by the reviewer, on page 27, and are in no sense whatever military. Indeed he tells us, page 20, that it is not "a fighting corps," but "a non-combatant portion of the military establishment." Yet, under cover of this act the department fitted out, manned, and fought the siege train, mountain howitzer, and rocket batteries; thus usurping the duties of the artillery in the field and applying the force granted by Congress to a purpose not contemplated by law.

The Adjutant-General, in his annual report dated November 30, 1847, in view of these facts and the subsequent increase by Congress of the number of officers of the department, says: "It may not be irrelevant to state in this place that while probably not more than ten companies of the four regular artillery regiments are serving with their appropriate arm—the other thirty-eight companies being armed and equipped as infantry—there are two batteries with the main army in Mexico served by *ordnance men* (with several officers), and one by a company of the regiment of Maryland and District of Columbia Volunteers."

"The men of the ordnance detachment were enlisted as *artizans and laborers*, and receive a higher rate of pay than is allowed by law to the soldiers of the light artillery."

"At the last session of Congress an increase of the Ordnance Corps was authorized, because the number of officers was deemed inadequate to the wants of that branch of service. It would seem, therefore, pecu-

liarily proper to confine officers of ordnance to the defined objects of that department. The service of officers of the ordnance is essential with an army in campaign; but their true position, like officers of engineers, is *on the staff* of the commanding general, and their appropriate, if not legitimate, duties are with the supplies and depots of their department. Economy as well as military propriety requires that all the harnessed batteries be transferred to the *artillery*, and it is respectfully recommended that the transfer be directed accordingly. No corps in service has been more distinguished in the present war than the artillery, and they are justly entitled to be equipped with the arm which they have proved themselves capable of using so efficiently against the enemy."

We may add to what the Adjutant-General says of the appropriate duties of ordnance officers, that it is expressly provided by law, sec. 11, act approved April 24, 1816, that ordnance officers be assigned, like engineer officers, to their duties with the staff of the army.

Under all these circumstances we would have been fully justified in saying not only that the increase of the department was made under a "pretext," but that the services of both officers and men were misapplied; that these officers and men were used for purposes not intended by Congress or authorized by law, and that their employment as artilleryists—for an ample number of whom Congress had already provided—was not only an injustice to the artillery regiments, but a fraud on the country.

Now for the ordnance sergeants and the number of ordnance men. In the official returns of the army, dated November 30, 1850, the last published, and from which, as we stated at the time, we took our numbers, signed by General Scott and the Adjutant-General, the following is the reported organization and strength of the Ordnance Department: 1 colonel; 1 lieutenant-colonel; 4 majors; 12 captains; 12 first lieutenants; 6 second lieutenants; 53 sergeants; and 510 *enlisted men of ordnance—number not limited.*" The Secretary of War has, we have heard, since the publication of these returns, checked the abuse of the power granted by the law of 1846 to the colonel of ordnance, and restricted the department to the number of men authorized before the war. But the law still exists, and the Secretary may, if he pleases, allow the department to be increased again. A new Secretary would probably soon be induced to do so. Before this regulating authority was interposed, the chief of the corps had made an attempt to secure to his department the artillery posts, and to deprive the artillery regiments of the last vestige of their artillery duties, excepting the light batteries. This fact is within the personal knowledge of the writer of the memoir, and the reviewer if he wishes it can have the proofs. Had this attempt succeeded, the "non-combatant portion of the military establishment" would have had at last within its grasp the object of its long and patient labors. And the fact that it had "secured the chief glories of the heavy artillery" in Mexico would then have been highly useful in enabling it to be declared the "users" as well as the "fabricators." It could have brought the experience of all the armies of Europe to support its pretensions, and it would have proved, clearly and conclusively, that the "fabricators and users" ought manifestly to be the same.

In this connection we will explain a word that seems to have attracted the marked attention of the reviewer. He frequently refers to the "antagonistic interests" mentioned in the memoir. We will tell him wherein the antagonism consists. The artillery has served long as infantry in the field, and has endured patiently and cheerfully all the hardships of

that arm, and of the cavalry, with the slow promotion due to the peculiar organization required for artillery troops. Its officers have seen their juniors in these branches passing over their heads whilst employed on the same service "to which it has pleased their country through its properly constituted authority" to devote *them*. And it has seen the "separated branch" taking advantage of the circumstance and of its own position, to appropriate as far as possible all artillery duties to itself, and endeavor in every way to supplant the artillery. It has felt the effects, and in the circular letters and memoir complains of being deprived by the influence of that separated branch of the means of instruction in its own arm. And it has seen, finally, the attempt made to drive it from its posts and to usurp its place in peace as well as in war. Under these circumstances it cannot well avoid feeling that there are "antagonistic interests"; that the Ordnance Department has made it its interest to supplant the artillery in its duties, and that it is not only the interest but the duty of the artillery to assert and maintain its rights. The object of the ordinance, although seldom avowed, has been steadily and systematically pursued, and is the key to its conduct towards the artillery. As a mere struggle for supremacy between rival corps this is bad enough, but when, as we have seen, the consequent ignorance of the troops is such that the men are found uninstructed in their own arm on the field of battle, thus putting at hazard the honor of the corps, of the army, and of the flag; jeopardizing the success of battle, and with it the high interests of the country, it is time that such antagonisms should be dwelt upon, and if possible extinguished.

This reply has already extended far beyond the limits we had assigned ourselves. We have not the space to expose all the errors of the review or to explain all the alleged contradictions and misstatements of the memoir. They are due mostly to the ingenuity with which the reviewer has contrived to misunderstand what offers no difficulty to ordinary readers, and in nearly all cases the memoir itself, if consulted, will silence the objections and cavilings of the review. We must, however, notice the criticisms on the proposed organization.

The objection to selecting the chief of artillery from the corps seems to be based entirely on the belief that the President will be guided in the selection by corrupt motives and appoint a favorite, without any regard to his qualifications. The artillery board is objected to because it is taken for granted that this incompetent chief will not place upon it members of approved capacity, but will most likely fill it entirely with officers of the lowest rank eligible. Fortunately the proposed plan restricts the selection to officers. If it did not, the reviewer would probably be frightened by the apparition of an artillery board composed exclusively of drummers. We will not attempt to answer these two objections.

We are told on page 24 that the proposed rule of promotion "is nothing new," and on the very next page that it is "new-fangled" and would be "an experiment." As we do not know how to answer both these objections at once, we will acknowledge that we are silenced on this subject.

The recommendation of a "school of practice" is approved, but the reviewer would establish it under the present organization. He gives a plan for one, page 14. No school of the kind would be of much benefit to the artillery, unless the corps should be confined exclusively to its appropriate duties. It would be hardly worth while, as we have proved by experience, to instruct companies as artillerists, if, so soon as they *are* instructed, they are to be turned into infantry and the knowledge they have gained lost. It is exceedingly discouraging to artillery officers

to see the labor they have bestowed on a company so thrown away; but we must deny positively, in bare justice to the whole corps, the charge on page 22, that it wants the "*disposition*" to apply the means at its disposal to make itself accomplished in all things belonging to its own duties."

We will now close by expressing our regret that the necessity of this "reply" has been forced upon us. In laying before the artillery and the public a memoir on the condition of the corps with a view to correcting its evils, no desire was felt of creating any feelings but such as would tend to improve the service. The plan proposed was not considered perfect, and its author would willingly have yielded it to a better or to satisfactory evidence that it would not accomplish the desired purpose, or that it would prove injurious to any branch of the public service. The author carefully avoided any unnecessary attacks or reflections whilst endeavoring to lay bare the condition of the artillery and the causes of that condition. The memoir has not been received by the reviewer in the spirit in which it was offered, and we regret it; for, although it has given us an opportunity to meet the objections offered, such discussions unavoidably assume the appearance of criminations and recriminations between its different branches on subjects involving the interests of the service, and therefore tend to destroy what good feeling the country may entertain towards the army.

NOTICE OF A REPLY TO THE REVIEW OF A MEMOIR ON THE UNITED STATES ARTILLERY

Whoever may read the reply, cannot fail to set its author down at once, as a believer in the apothegm that "words are things." Indeed, he has advanced a step further in his idea of the importance of words, and seems to regard them as facts, good substantial facts, suitable to be laid down as premises, and to work up into arguments. When a writer desires merely to exhibit himself in a literary exercise, this sort of composition may serve that purpose; but in dealing with practical and serious questions, it is a vicious habit, leading the writer unconsciously to extravagant statements and conclusions, and perplexing the reader to determine between what is meant for real fact and serious opinion, and what for mere ornament and rhetoric. When applied to such cases, Hamlet's is the just estimate of the value of such writing:

Polonius.—What do you read, my lord?

Hamlet.—Words, words, words.

The reply is apparently written by an artillery officer, evidently by a young one, the exuberance of whose fancy has not yet been tempered by the judgment pertaining to experience. When maturer age shall have sobered his fancy, and brought it more under the sway of his judgment, he will probably recur with regret to his unkind innuendoes against many worthy officers of the army and of the corps to which he himself belongs, and his unjust charges against an entire department of the military service: and will class them among his youthful indiscretions.

The reply commences by stating what the object of the review of his memoir "seems to be." That object was not what it *seemed* to him. Those who have read the remarks and the review which are the subject of the reply, without a predetermination to condemn, and a disposition to misunderstand, will perceive that their object was first, to set before the public *facts*, to show that the separation of the Ordnance Depart-

ment from the artillery had not injured the artillery, but had improved it, by securing a better material for its use: whilst its continued separation was required by the best interests of the standing army and of the military service of the nation: and, second, to point out some of the defects and errors in the plan of reorganization *as proposed and discussed in the memoir*. In either, or in both, some unpalatable facts to the writer of the memoir were stated, and some not agreeable exposures made of his probable views in urging that particular organization, and of his errors of fact and deduction in discussing it. The occasion, also, called for remarks on some unjust attacks, whether intentional or accidental, against a class of officers or individual ones. The reply endeavors to show that his statements were right, his views correct, his remarks not unjust to others; in short, that he is altogether right, and the reviewer altogether wrong, and that to make out a case, I have misstated and mutilated his ideas and language—it is more than insinuated, *purposely*. How far he has succeeded in this endeavor, I will show by taking up the different points of his reply as they occur in order.

The reply says in the beginning: “If our Ordnance Department were the most accomplished military body in the world, that would be no good reason why our artillery, as a whole, should be the worst.” This is a truism as it stands in the reply; but how are the facts, for I prefer to deal with things as they are, rather than to go in search of hypotheses. Our Ordnance Department, although not claiming to be “the most accomplished military body in the world,” has fulfilled, and does answer the purposes for which it was established. The great improvements which have been made since its present organization in that portion of the munitions of war coming within its province to provide, keep, and supply, fully attest this. Its *works* speak for it. As for our artillery being the *worst*, that is disproved conclusively by *its* works. Indeed, the reply excepts the light batteries, and speaks of the knowledge and skill of the officers of the rest of the artillery. The very cause assigned in the circular letters to the Secretary of War for the necessity of doing something for the relief of the artillery was want of knowledge and skill, and no exception was then made in favor of the officers.

The true state of the case is, that our artillery, so far from being the worst, is among the best, if not the very best, to be found anywhere. It has done most capital service to the country, both as artillery and as infantry, in whichever capacity the wants of the country most required it to serve. This service it has rendered under its present organization, and can and will, doubtless, render again, whenever the occasion may demand it. That the enlisted men of the artillery are not familiar with the nomenclature and use of all the artillery material, is owing to the fact that there is no special school of practice. It would involve a far greater expense than the country is willing to incur to procure that material and place it at the numerous posts where they are stationed. A practical school of artillery is the only method of instructing the enlisted men, and the concentration, at one point, of a large number of them is the only *practicable* way of establishing such a school.

It is stated in the reply, and great stress is laid on the fact, that the best European armies have an organization similar to that proposed in the memoir. The question is not, which is the best organization for European armies, but which is the best for our own army. We have tried the European organization, and, after experience, have deliberately abandoned it, finding that in our country it failed. This quotation of European example seems to be a favorite argument with the advocates for merging the ordnance in the artillery. They seem to forget not only

the lessons of actual experience, but also that our entire military system is altogether different from the European. We keep, and always will keep, but a small standing army, and our military strength must consist almost entirely of our national militia. On an emergency, any requisite number of that species of force can be brought into service, and with good arms, equipments, and munitions, such as our Ordnance Department furnishes, they will soon make as efficient troops as can be found anywhere. The policy of our country, then, has been, and is, to provide, and lay up in its military arsenals, an ample supply of arms and munitions of the best quality, to convert its citizens into an army whenever one may be needed. With this object, it has enacted laws for the distribution of arms and equipments to the militia of the States—it has established national armories, and it has laid up in its arsenals arms sufficient for an army more than a hundred fold larger than that of our peace establishment. To execute these laws, to superintend these armories and arsenals, to provide and take care of these arms, it has organized a distinct branch of its military establishment, whose sole business is to attend to these matters, and to qualify themselves, by acquiring the proper knowledge and experience, as they have done, to manage them in the best manner. This branch is not necessarily dependent on the existence of a standing army in peace; for although part of its business and occupation is to furnish the armament and equipment of that army, the more important part is to provide and preserve them for the whole nation. In the words of the law, the duties of the Ordnance Department are to provide and supply all such articles for the use of the *armies* of the United States. When the great difference between our military system and those of European nations is considered, it is preposterous to tell us that we ought to do as they do, simply because they do so. Indeed, if our military systems were similar, there would be no good reason for our following them in their errors. So far as a separate and distinct branch for constructing and supplying arms and military implements and equipments goes, we have improved on their plan, and they practically acknowledge it by keeping the officers of that branch permanently on such duties, although still nominally belonging to that corps which uses the fabrications of the other in battle.

This brings me to notice that part of the reply which charges that the efficiency and usefulness of the Ordnance Department is owing to its having appropriated the productions of foreign services. That our artillery material is of the same general plan as the French, is because the Ordnance Department, on its resuscitation from its merged state in 1832, found that the artillery, after swallowing it, had, anaconda like, been asleep for years, while other nations had been making improvements, and gone far in advance of us. It cast about to find out, as a first step towards regaining the ground lost by this lethargy, what progress the world had made, while our artillery had been sleeping. Various systems were examined, and their advantages and defects noted. The French material, as a whole, seemed best. It was certainly far in advance of that with which our artillery of 1821 had been content to grope along, in inability of providing, and in ignorance of the existence of, a better, and with which they would have continued to grope till this day, but for the wise substitution of the separate corps intrusted with, and made responsible for, the quality and fitness of this military material. The Ordnance Department was not content to adopt, blindly, even the best European material, superior as it was to our own at that time. Native ingenuity was brought to bear upon it to test its excellencies and defects—to adopt and improve what was good, and to detect and

reject what was bad. The result is the system for the United States land service, the work of the Ordnance Department: certainly not *original* in all its parts, but revised and corrected from the best productions of the kind in existence. A nation which, like ours, is fixed in its policy against maintaining large armies, and which has had, and it is to be hoped will have, but little practical experience in wars, must look to that of other nations, in a great measure, for such improvements in the material of war, as only practice and actual use can suggest. With no wars, and too small an army to have any extensive practice with the material of war, our own experience will give us but few improvements suggested by actual use. We must, then, in order to keep pace with other people, in order to be up with the improvement of the times, *in this respect*, avail ourselves of the practical experience of military nations. We must watch their progress, and study their improvements. A separate corps, or small body of competent men set apart to do this, and qualified by education and by practical skill in construction to judge of what is really an improvement, and to adapt it to our own service, is most suitable for this end. It is with this view that we do, and ought to, have a separate Ordnance Department. "The beautiful and perfect modern material," which "Reply" states was exhibited to the army in Mexico, by the Ordnance Department, is one of the results of the separate organization of that department. Another, and far more important one is, that this same beautiful and perfect material is prepared for, and annually distributed among, the militia of the States and Territories. It is creating an interest among them in the use of such articles; they take a pride in their beautiful and excellent construction, and among our State troops we now have some as good artillery companies as are to be found almost anywhere, and their interest in such matters is increasing.

The reply next refers to the notice, in my review of his memoir, of the main error which he then asserted, and now clings to, notwithstanding my exposure and refutation of it. He announces his proposition quite boldly, as if he really intended to prove it. "We will now show," says he, "that the Ordnance Department is, theoretically and practically, a part of the artillery." How does he show it? By quoting from Thiroux, a French writer, *his* definition of the term artillery, and from two officers of our Army, who have written military works. The latter give what the *personnel* of the artillery is in modern army organization, expressly stating that in our service it is different, and that we have a separate Ordnance Department. The Frenchman us tells what we all knew before, that the French artillery includes that portion of the army which is the ordnance in our service. Now, had "Reply" told us that his memoir was on the *French* artillery, or on artillery generally, and not called it a "Memoir on the *United States* Artillery," I would not have been led into the error of supposing that he meant one thing, while he professed on be inditing a memoir on another. He would have been saved the trouble of translating Thiroux, to prove that the *United States* artillery and the *United States* ordnance are all the same in French. If such reasoning can pass current, we may expect soon to see some ordnance lieutenant writing a memoir on the United States ordnance, and proposing that our artillery, and our engineers, shall be merged into the ordnance, because the parts of that branch should not be disunited; under a chief of that corps, to be styled a master general; with the proviso that one feature of the new organization shall be to make captains (second captains at the least), of enough of the lieutenants to include himself. Should any one be so rash as to review him, and suggest that the engi-

neers and artillery form no part of the ordnance, he can readily show that they are, "theoretically and practically, a part" of the ordnance, by quoting the British Army Register, without the trouble of translating from a foreign tongue. But no matter from what source quotations may be drawn, all the authors that have ever written, be they French, English, or American, cannot make that to be which is not. There it stands on our statute book, a *law of the land*, that the United States Ordnance Department is a separate and distinct branch of our military establishment, and the United States artillery another. All the special pleadings that the "Reply's" ingenuity can produce, and all translations and quotations that his knowledge of tongues and variety of reading may furnish, cannot change the fact. As to his criticism of my giving the word artillery a local meaning that would not be understood out of our own army, I have only to say, that the subject under consideration was exclusively our own army organization. The difference between us is, that I would not be understood out of it, and he could not be understood in it. After stating his beau idéal of the definition of artillery, and its duties as derived from Thiroux, one would suppose that, if only for consistency, he would desire that to our artillery all these duties should be assigned. Not so, however; he is content to swear by Thiroux so far as it may suit his design to usurp the functions of the ordnance, but declines to undertake all the duties which he states to pertain to the artillery. "*The construction of morable bridges for the passage of armies*" is not claimed, notwithstanding that it is the duty of the "artillery" in the sense in which that word is used in the memoir. Another corps has been usurping, in this respect, the appropriate duties of the artillery; why not punish the presumption by merging that too?

After admitting that our arms, and other material known under the designation of "ordnance stores," have undergone a great improvement since the separation of the Ordnance Department from the artillery, the reply contends that the improvement is not owing at all to that separation, and that without the separation, "it is to be supposed that the modern improved material would have been not only introduced, but *used* by the artillery." Now, I prefer—it is a habit I have—to take things as they really have been, and are, instead of arguing from what it is supposed might or would have been. I fear that "Reply" has been wasting his time in researches among what is known as the *media scientia* of the schoolmen, the purport and character of which science may be illustrated by a sample of the species of questions peculiar to its province of research, viz: "What would *you* have been *if* your uncle had been your aunt?" The question may be made the subject of a second memoir, and I commend its investigation and discussion to "Reply," as peculiarly suited to those minds that take delight in running on hypotheses. It will certainly be a more useful and innocent occupation than searching after imaginary delinquencies of the Ordnance Department, and working them up into serious charges. I will remark, that whoever may undertake to suppose that the same improvements would have been introduced without a separate Ordnance Department, will be supposing against actual experience and facts. There was a better artillery corps, with a better material, before the merging in 1821, than in 1832, when that experiment had been tried eleven years, and was abandoned as "a signal failure." This is known to those officers of our army who were then in service. The artillery, *à la Française*, "one and indivisible," during the eleven years of its existence in that state, had made no attempt at improvement, and had not even kept up with the progress of the times. The Ordnance Department received a separate organization,

which it has since retained, and the model and quality of all our arms and material became better, and have continued to improve. Now, when a particular result is known to follow uniformly, a particular measure, right-judging men are very apt to see the connection of cause and effect between them. The reply states that the first separate Ordnance Department "showed its incapacity to such an extent, that it was merged in the artillery in 1821." He admits that "all our arms and material are now of better model and quality, and of more perfect finish than they were prior to" the date of the present, or second separate Ordnance Department, which has thus shown its capacity, and yet he contends that it ought to be merged, as it was in 1821. At that time, he says, it was merged for its incapacity, and now that it has shown its capacity, he proposes to merge it again. This is rather illogical.

In treating of our small arms, the reply takes occasion to notice the greater cost of our musket than the French, and refers to the report of Major Hagner of the Ordnance Department, in proof of it. Does he find it inconvenient to remember that the French arms are of inferior finish, and accuracy of dimensions, and that the same report gives the price paid to a mechanic for a fair day's work at 47 cents, less than a *third* of our rate of wages? Or, if he should succeed in introducing into our service the other parts of his French plan, will he next exhibit its economy by putting our mechanics at the French wages of 47 cents a day? This scheme has not entered into the ordnance plan of conducting the national armories, and since they have been under the charge of ordnance officers, notwithstanding the vast amount saved to the government by the reduction in the cost of arms, the wages of the mechanics have *actually been increased*, and they now receive, on an average, more pay per man than they did when these armories were under another superintendence. The better pay of our mechanics, and the superior quality and finish of our arms, more than account for the difference between their cost and that of the French.

The reasoning of "Reply," or rather what he intends as reasoning, about the users and the fabricators being the same, proves nothing at all but that he thinks they ought to be so.

As regards his reference to the ordnance of the navy, it is point blank against him; for, since the ordnance branch of that service has been made as separate and distinct as the navy organization will admit, there has been a great improvement in it. Practically, they have a separate Ordnance Department. They have profited by the experience of the army in this respect, and their own experience has but confirmed the advantages of having this branch of the service separate and distinct.

The instance of a company of French artillery at a foundry, under its proper captain and subalterns, with its battery equipped in every respect, and ready for service at short notice; turning out thirty pieces of cannon per month; turning and boring them with their company horses, if intended to be applied to our country, is simply *ridiculous*.

But to leave special points and take a general view of the matter.

The material of war must be fabricated *and* used. Our system is to have a separate class of persons for each. The same persons cannot be the fabricators and users at the same time. With the education received by all our officers, nothing is wanted to make them accomplished and expert in either, but practical experience. That is acquired by constant and continued application. If there be a frequent change of occupation from the construction to the use, and the reverse, the experience and expertness, acquired in the one, will be measurably lost whilst pursuing the other. Exclusive attention to one branch of business is certainly

more likely to insure skill, than divided attention given occasionally to one, and then to another. It is to this that the want of professional skill, complained of by many artillery officers, is really due, and not, as was contended in the memoir, to the existence of a separate ordnance department. The time and attention of our artillery have been divided between the duties and occupations of different arms. But a remedy for this will not be found by assigning to them those of yet another. They were no better artillery—not so good—when, from 1821 to 1832, they had both infantry and ordnance duties in addition to those of their appropriate arm. The taking away of ordnance duties was one step towards their improvement. Let them be relieved also from infantry duties, and made really, as well as nominally, artillery, and the particular organization under which they may be placed, whether in regiments or a consolidated corps, will be a matter of minor importance. The views of the War Department, of the General in Chief and other experienced officers, and the general sense of the artillery, as to the best form of organization, will probably be the safest guide in this respect, and not the views of a few individual members of that corps. If the memoir on the United States artillery had been confined to suggestions for the improvement of that arm: if those suggestions had been wise and judicious: and if it had not embraced, as a leading feature, the destruction of another important and useful branch of the military service, it would have received from me all commendation, and such aid as lay within my humble abilities to furnish. The plan of details from the line of the Army was long tried in our service, and its abandonment, for our present plan of a separate branch for each distinct kind of work, has proved highly advantageous to the service. If the officers of another corps be assigned to the duties of the Ordnance Department, they must, to be efficient and skillful, be a permanent detail, which is the same thing as an Ordnance Department under a different name. Our ordnance officers, from their education, are acquainted with the use to which their productions are to be applied, and their experience and skill in mechanical construction enables them to contrive and execute those productions, in the manner best suited to attain the end in view, and with the greatest economy. It is the occupation of their whole time, and their exclusive study. In this respect our organization is superior to that of European nations, and such of them as have approached nearest to it, by having *permanent* details for such duties, have the best military material.

The reply next adverts to my exposure of his covert attack on certain officers, and of the effect his proposed organization would have on the duties of others; as also to my so collating his strictures on the senior officers of his corps as to bring them plainly into view. This he calls appealing to their passions to secure their assistance, and complains of, as an effort to excite against him the personal ill-will of his superior officers. Now all the reviewer did, in this respect, was to state, in plain language, to whom the charges in the memoir must necessarily apply. A prominent charge was intentional favoritism towards the ordnance on specified occasions; viz, at the siege of Vera Cruz, and the attack on Chapultepec, to the prejudice and wrong of the artillery. I contended that this could not be brought as a charge against the Ordnance Department, because that department had nothing to do with awarding glories at either of the places named; and that the accusation must apply to the General-in-Chief who commanded on those occasions, from whose reports information was derived as to the share of glory due to the different officers and corps. This was only laying at the right door the charge of intentional favoritism brought by the memoir. If it excites

against its author personal hostility, it is nothing more than must be expected by every one who brings untenable charges against another, and he has no one to complain of or blame but himself. His attempt to explain it, by stating that "no one probably has ever heard before that the General-in-Chief is the only 'fountain of honor' in this country, nor are his reports looked upon by the Army as the sole dispensers of glory," does not touch the case at all, and is only so many waste words. If he had stated that he did not mean it as a charge against the justice and veracity of the General-in-Chief, the explanation might have been satisfactory, as to the intention; but, instead of that, he repeats the charge in the reply by quoting from "General Scott's report of the capture of Chapultepec and of the city of Mexico," an instance of his favoritism to certain ordnance officers, by naming them as "highly effective and *distinguished* at the *several batteries*," while "not one of the artillery officers, nor the infantry officer who volunteered, *all of whom served as faithfully and as ably* with the batteries as did the ordnance officers, is mentioned among the 'select few.'" He makes no attempt to account for the silent acquiescence of the chief of artillery, at Vera Cruz, in the injustice done to his own corps there, by awarding the glories earned by it to the ordnance. As he does not appear to think his charge in this quarter worthy of explanation, he might at least have the grace to offer an apology.

As regards his strictures on the senior officers of artillery, which he now labors hard and long to explain, no one can possibly read the memoir without being struck with the frequent contemptuous and disparaging allusions to them. Indeed, its whole aim and object seems to be to advance the interests of the junior officers without regard to the seniors. Special care is taken that seniority of commission and length of service shall have no weight in the selection of the proposed brigadier. He is to be chosen exclusively with reference to "talent and administrative capacity;" and in order to prove that at least three of the four seniors are ineligible to the position on those grounds, the various arms are mentioned from which "the present colonels" were drawn; the object avowed in the reply being to show that there was nothing in their previous education to make either of them a fit selection, and nothing in their subsequent experience to remedy the defect. They are not competent artillery officers, either by education or experience, if the memoir and the reply be good authority.

A part of the memoir's plan of reorganization takes from the Adjutant-General a portion of his duties, and assigns them to another officer; not the recruiting of the corps as "Reply" supposes, but all his duties in connection with the corps. (See memoir page 13—II.) Was it not a query, which naturally presented itself, why the Adjutant-General should be thus shorn of functions long pertaining to his office, and which he had always faithfully discharged? And was not the similarity between him and one of the colonels who had been pronounced incompetent as an artillerist too palpable to avoid the inference that they were both placed in the same category? If the author of the memoir intended not to interfere with the functions of the Adjutant-General, or to allude to him indirectly through another, he was very careless in employing language so plainly admitting that inference. If he recklessly threw at one and hit another, he must take the consequences, and not blame him who remarks on it.

I come to notice a repetition in the reply of groundless and unjust charges against the Ordnance Department, similar to those in the memoir, which compelled me, one of its officers involved with others

in those charges, to come out in self-defense. The memoir charged in general terms that the Ordnance Department had often been deficient in rendering the services due from it. This sweeping and intangible charge was met in *the only way in which it is possible to meet such charges*, by a flat contradiction and a challenge of proof. The reply in answer states, "We will give the proofs." He accordingly proceeds, not to prove anything, but to give the specifications of his former general charge, unsustained by a particle of proof, except his own assertions that the facts cited are so, and that they are well known; referring the reviewer to all who served at Fort Brown during the bombardment, and appealing to all who served with the heavy artillery on the Rio Grande, to say what was its condition. Here I might rest the case, and confidently claim an acquittal of the charge and specifications as "not proved." It is rather a novel idea to refer the accused to the witnesses competent to prove his guilt, instead of bringing forward their testimony. Nor are *appeals* to witnesses very convincing, when those appeals are unanswered. But as it happens that those witnesses will *disprove* the only serious charges he prefers, I will go to them as referred, and produce their answers to his appeals.

The first specification is, that the guns at Fort Brown and their appendages were *bad* in every respect, and that there was a deficiency of ammunition. "The whole battery," he says (the heavy battery of 18 pounders), "was pronounced on its arrival by many officers, some of high rank and character, as shamefully deficient, and all considered it disgraceful, when the government possessed far superior ordnance, to send into the field, where the best was needed, such old and apparently unserviceable guns. One of them broke down" (I suppose he means a carriage, as *guns* are not likely to break down) "during its transportation on the level road between Point Isabel and the fort. This was bad enough, but bad as the battery was, it was not adequately supplied with ammunition. On the second day of a bombardment which lasted seven, not a shot was returned to the enemy's fire." "Had there been sufficient ammunition the enemy's guns might have been silenced—at any rate the fighting would not have been all on one side." I have *quoted* the substantial parts of this specification; there are other minor details, for which any who desire to see them are referred to the reply, pages 18 and 20. The inference would naturally follow, from the particularity with which the various defects and deficiencies are detailed, that the author of the reply was present, and actually saw the battery. Not so, however; he was not within a thousand miles of it at the time of the siege, nor for nearly three months after it was over. His story must be derived from hearsay, which is no evidence; and no considerate and just mind should feel justified in founding such serious accusations upon it. Let us hear the evidence of those who actually saw and used these things—evidence given in their official reports.

It is well known to all officers of the army that supplies of all kinds are furnished according to requisitions from the commanders of the troops. The regulations require this, and the military commander is made the judge of the kind and quantity of supplies requisite. A supplying department has no right to incumber him with superfluous stores, the care and protection of which might impede his movements and seriously embarrass his operations. It would be very reprehensible to do so. On the 6th August, 1845, the Adjutant-General wrote to the Commanding General of the army in Texas (who selected Corpus Christi as the place to form his camp on the 15th of August) as follows: "In view of further precautionary measures, I am instructed by the Sec-

retary of War to learn from you, at the earliest date, what other force and munitions (judging from any information you may possess as to the future exigencies of the public service) you deem it necessary to be sent to Texas; that is to say, what additional troops, designating the arms of the service, what supply and description of ordnance and ordnance stores, small-arms, &c."

"It is deemed expedient to establish in Texas one or more depots of ordnance and other supplies, for which purpose you will please report the proper points to be occupied." The receipt of this letter by the hands of an ordnance officer was acknowledged on the 26th August, and on the 6th September following General Taylor wrote to the Adjutant-General, "I shall not relax my exertions to *prepare* for active operations and a state of war with Mexico." Here was full authority, indeed instructions, for the commanding general to call for all the ordnance supplies he might want. He had acknowledged their receipt, and was making preparations for a state of war. *There was never a single requisition on the Ordnance Department from that quarter which was not promptly and fully complied with.* The same time was given to the troops to require the supplies that was available to the Ordnance Department to furnish them, and before any blame can rightfully be attributed to it, it must be proved that there were requisitions unfulfilled. The charge of deficiency in such supplies, if true, would lie against others. But all was sent that was asked for by the army in Texas, and more, by direction of the authorities in Washington, and there was no deficiency. General Taylor, when reporting the advance of his Army in the direction of Matamoras, under date of March 8, 1846, says: "Major Munroe will embark for Brazos Santiago in season to reach that harbor about the time the Army will be in the vicinity of Point Isabel. He takes with him a siege train and a field battery. Captain Sanders, of the engineers, the officers of ordnance, and the pay department accompanying Major Munroe. * * * All proper arrangements have been made by the staff departments for supplying the army on the route, as well as establishing a depot for its further wants at Point Isabel." Now, this siege train included that identical "whole battery," which "Reply" characterizes as "shamefully deficient" and "disgraceful to send into the field," and "not adequately supplied with ammunition." If "Reply's" charge be true, what is to be thought of General Taylor's official report? One of the carriages (not a gun as "Reply" has it) did break down on the road between Point Isabel and Fort Brown, owing to the traveling of the gun by the officer (not an artillery nor an ordnance officer) who commanded the train which the 18-pounder battery accompanied, on the service trunion beds, instead of the position prescribed for traveling. With such treatment it would not have shown any fault of construction if *all of them* had been broken. Now, as to the particular case of Fort Brown, the siege of which lasted from the 3d to the 9th May, 1846, inclusive, General Taylor writes to the Adjutant-General from camp opposite Matamoras, April 6, 1846: "On our side a battery for four 18-pounders will be completed, and the guns placed in battery to-day. These guns bear directly upon the public square of Matamoras, and within good range for demolishing the town." This 18-pounder battery is the same which constituted the subject of "Reply's" animadversions. It was to be *completed* that day under General Taylor's eye, and he found no defect or deficiency in it. On the 3d May, 1846, General Taylor reports to the Adjutant-General from Point Isabel: "I therefore hastened the operations on the field work, and was able, by great exertions on the part of the troops, to bring it into a good state

of defense by the 1st of May. The seventh infantry, under Major Brown, with Captain Lowd's and Lieutenant Bragg's companies of artillery, and the sick of the army, were left in the work." Here he reports the work (Fort Brown) in a *good state of defense*. Could he have passed unnoticed "guns and their appendages *bad* in every respect" and "not adequately supplied with ammunition"? He was not so very averse to reporting deficiencies, for in the same letter he complains of "deficiency in the proper description of light troops." Again, on the 5th May, he writes officially from Point Isabel: "On the morning, and during the day of 3d instant, a heavy cannonade was heard in the direction of Matamoras. Though not at all solicitous in regard to the safety of our fort, I was anxious to hear from Major Brown, and dispatched a party to communicate with him under cover of a squadron of cavalry." He was *not at all solicitous* in regard to the safety of a fort, so badly supplied, as "Reply" asserts, Fort Brown was? The report, by the commander of the fort, of the first two days' operations of the siege is entirely silent as to any of the defects and deficiencies charged by the reply, but is somewhat to the point as to the effects of the "bad" and "inadequately supplied" battery. It is dated Fort Texas (afterwards called Fort *Brown*, after its gallant and lamented commander) May 4, 1846, and is in these words—addressed to the chief staff officer of General Taylor: "I have the honor to report that on the morning of the 3d instant the enemy's batteries opened on us at 5 o'clock. The firing commenced at the small sand-bag fort, and was continued with seven guns. Our batteries were immediately manned, and a strong fire kept upon it from our batteries of eighteen and six pounders until the firing ceased from it: this battery ceased firing in thirty minutes after our batteries opened upon it, two of the guns of the enemy supposed to be dismounted."

"The enemy then commenced firing from the lower fort and mortar battery. One mortar only observed, which was removed from the sand-bag fort, from whence the first shell was thrown; this fire was kept up briskly; and although the shot were generally well aimed, they did us no harm."

"After this removal of the guns of the enemy from the sand-bag fort, I ordered a deliberate fire from Captain Lowd's battery on their guns and the town, ordering the consulate flags to be respected. My men were sent to work, at 7 o'clock, on the unfinished curtain and gateway, which was continued during the firing on the 3d instant, and was nearly completed at 9 p. m. Although the fire of the enemy was kept up with little cessation until half past seven, there was but one casualty, a sergeant of company B, seventh infantry, killed. At half past nine I ordered Captain Lowd to throw hot shot into the town; the attempt was made, but the shot could not be sufficiently heated to effect my object, to fire the town."

"Finding that our six-pounders affected little the enemy's guns, owing to the distance, and wishing to husband our men and means, I ordered the fire to cease, and the guns posted to repel an assault from the rear. The enemy's fire was then concentrated on Captain Lowd's battery, but doing no harm, although the embrasures were frequently struck. Our 18-pounders were fired deliberately and effectually until about 10 o'clock, when, finding that the enemy could do us no harm, I ordered the firing to cease, as it was impossible to silence the enemy's mortar, and from this we were only in danger; at this time, 10 o'clock, the enemy's fire was suspended temporarily, but recommenced and continued at intervals until 12 o'clock at night. It is believed that during

this period the enemy fired twelve or fifteen shot. Between two and three o'clock this morning Captain Walker came in, and left here about 4; shortly after reveille he returned. At 5 o'clock this morning the firing was recommenced by the enemy, continued for about twelve or fifteen shots, and kept up at long intervals; one shell at 11 o'clock, one at 12, one howitz and shell at 5—all ineffectual. We are constantly on the alert, and I cannot speak too highly of the efficiency of the officers and men of my command. Our defenses are continued daily, and, when necessity requires, at night."

Is it probable that, under the circumstances, and at the time when this report was written, a defective battery and an inadequate supply of ammunition would have escaped censure or notice?

The next testimony I bring in the case is that of the officer who commanded the 18 pounder battery during the whole siege. His official return of the ordnance and ordnance stores received, issued, and remaining on hand at Fort Brown, during the 2d quarter of 1846—embracing the whole period of the siege, as well as time anterior and subsequent—is before me. It shows exactly the number and quantity of the guns, carriages, equipments, appendages, and *ammunition* at Fort Brown, both before and after the siege, the quantity of ammunition and all other ordnance supplies used during the siege, and the quantity remaining on hand thereafter. Although the prescribed *form* for such returns, according to which this is made, has a separate head for reporting *unserviceable* articles if there be any, there is nothing so entered on this return from Fort Brown. Extracts from the return, including everything pertaining to the 18-pounder battery and its supplies, are appended. An examination of them will show that the battery was amply supplied; that out of 788 balls, case and canister shot, on hand before the siege but 406 were expended during its entire continuance; leaving the fort, at the end of the siege, with 382 rounds—only 24 less than were expended during the seven days the fort was beleaguered. The quantity of priming powder (of which the reply charges there was *none*) left after the siege was more than four times the quantity used during its continuance. "Reply" even charges against the Ordnance Department the neglect of officers of other corps to provide their *personal* equipments. He says there was "no spy-glass." Now he cannot be ignorant (I suppose there is no officer of the Army who is ignorant) that the Army Regulations hold all officers "above the rank of captain, and also aides-de-camp and captains of engineers and artillery," bound to have about them at all times, when on duty in the field, a "spy-glass or small telescope." He might with as much propriety and justice charge the Ordnance Department with deficiency because there were no razors. Indeed, the then Chief of the Ordnance Department, as soon as he learned that many of the officers had neglected to provide themselves with spy-glasses, purchased a number of the best portable ones that could be found in New York, had them put up in leather cases with straps for slinging them over the shoulder, and sent them to the seat of war. The box containing them was broken open on the way out, and most of them stolen. The "Reply" may avail himself of this last occurrence to found another charge against the Ordnance Department. There are just as good grounds for it, indeed better, than for the other charges he has brought. He may be ignorant that neither "quadrants" nor "tompions" are among the implements and equipments of an 18-pounder siege battery. If so, he should inform himself, and not allow his ignorance to bring charges of neglect of duty against others. I have no access to any other reports relating to this siege, and never heard any other com-

plaint in regard to the *armament* of the fort, than that from the writer of the reply, who was at the time no nearer the Rio Grande than New York. If there were any officers present who thought there was neglect in supplying the garrison they ought to have reported the ordnance officers to their chief. To my certain knowledge no such reports ever reached the Ordnance Office. There was another officer in command of a battery at Fort Brown during the siege. He is the same who "saved the day" at Buena Vista. I have an official letter to the Ordnance Office from him before me. It is dated Matamoras, 5th July, 1846, and says: "It gives me great pleasure to express my admiration of the completeness and perfection of our field batteries, and the supplies for them. The accuracy with which my guns fire, and the perfect reliance I can place on them and my ammunition, are sources of much gratification and pride." These batteries and this ammunition were made and supplied by the Ordnance Department.

I must beg indulgence if I dwell a little longer on the subject of this heavy battery. It did its work so well at Fort Brown, as did also that part of it which was at Palo Alto, as to deserve a defense against its present assailant. The battery was of six 18-pounders; it was sent to Texas in September, 1845. The invoices were sent to the commanding-general; the number and caliber of the guns and the fashion of the carriages were all known to him; and with this knowledge for more than six months, he made no complaint of them, and no requisition for others. The result, when they were brought into use, gives satisfactory proof that none others were necessary. The battery was sent to Point Isabel, when the army advanced from Corpus Christi, and reached there on the 25th March, 1846—within one hour of the arrival of the army. Four of the guns were sent to the position opposite Matamoras on the 6th April, with as much ammunition as the commanding general required, and all they had up to the time of the siege. The fort was, by great exertions, brought into a good state of defense by the 1st May. Here was a whole month, during which supplies could have been augmented from the depot at Point Isabel, only 20 miles distant, and yet, if the reply be right, General Taylor neglected to order any more up, and left the garrison inadequately supplied. As an evidence of the means of the ordnance depot, at Point Isabel to furnish ammunition for the fort, had it been required, it may be stated that two 18-pounders, late in the day of the 7th of May, were equipped for the field, accompanied the army on its return march to Fort Brown, and did effective service at Palo Alto. General Taylor, in his official report of that battle, says: "Our artillery, consisting of two 18-pounders and two light batteries, was the arm chiefly engaged, and to the excellent manner in which it was maneuvered and served is our success mainly due." These are the "two heavy pieces" referred to in the reply as "turned over to the artillery at the last moment and drawn by oxen." They had been at Point Isabel since the 25th March, ready to be turned over to the artillery at any moment they might be ready to use them. They were found very useful at Palo Alto, and would have been much missed had they not been taken with the army, at the suggestion of an ordnance officer. The reason of their being drawn by *oxen* was that there were no horses to put to them. If "Reply" intends this, too, as a charge against the Ordnance Department, the answer is, that *he knows well* that it is no part of the duty of the Ordnance Department to furnish draught horses, and never has been. An officer of topographical engineers was detailed to serve with these heavy guns; but I see no comment on this usurpation of the duties of the artillery, although when it was done on the other line, in the case of

ordnance officers, it was characterized in the memoir as an exclusion of the artillery from their appropriate duties in an "insulting and contemptuous manner." "The pieces furnished for Tampico" (says "Reply"), "were of the same class, but fortunately their powers were not tested." Fortunately *for the enemy*, if we may judge from the effects produced by the pieces of the "same class" at Fort Brown and Palo Alto.

The next charge is almost too trivial to be noticed. It is, that an ordnance officer on one occasion issued to a battery of artillery from the depot at Point Isabel "primers, fuses, &c." which were found to be "nearly all utterly unfit for use." I will give the facts from the same source from which "Reply" obtained his information. Whilst the troops under General Worth, which had been withdrawn from General Taylor's line, were in camp at Palo Alto, on their way to Vera Cruz, the commander of a field battery made a requisition on the ordnance depot at Point Isabel for some fuses, tubes, horse-shoes, and horse-shoe nails. The depot was then in charge of a young lieutenant of ordnance, the other ordnance officers having gone forward *with the army* to Monterey and Saltillo. The stores called for were sent, packed in boxes. In one of the boxes were found, loosely packed together, fuses, tubes, horse-shoes, and horse-shoe nails. Many of the *tubes* were bad; how many, the officer who received them does not recollect. The appearance of the package was bad. It was reported that the ordnance officer said he knew the tubes were bad, and that he wanted to get rid of them from his returns. This led General Worth to call for a report in the case. What the report was the officer commanding the battery does not recollect. Whatever it may have been, General Worth did not feel himself called on to take any farther action on it. He never made any report of it to the Chief of the Ordnance Department, and did not regard it as of sufficient consequence to make it a matter of complaint or accusation against the officer. The commander of the battery suffered no inconvenience from the bad quality of some of the priming tubes—for some of these alone are stated by him to have been bad, and not "primers, fuses, &c." as stated by "Reply"—and obtained a supply of good ones *from the Ordnance Department* elsewhere. This is the true statement of the facts of this case as they actually occurred. At most it amounts but to carelessness on the part of a young lieutenant of ordnance. The attempt to magnify it into a charge against the Ordnance Department will be duly appreciated by every just mind. The fact of bringing forward such a case, as a grave charge, shows to what straits the reply was reduced to find matter for even the color of accusation. During a whole war, where hundreds of thousands of primers were supplied, that the issue of some bad ones on a single occasion should have been a subject to call for a special report, and to be brought up as a matter of accusation more than five years after it occurred, is rather complimentary to the general accuracy and care of the Ordnance Department. This is the last specification of the neglects and misdeeds of that department on the Rio Grande line. Before changing the scene to the other line of operations I will take occasion to refer to General Taylor's orders, No. 60, dated May 12, 1846, wherein he names certain officers (among them the ordnance officer) to whom "credit is especially due for their zeal and activity," and to ask where, in the many dispatches of General Taylor, will be found other than honorable mention of the Ordnance Department.

I come now to the last specification, viz, that the Ordnance Department "threw their duties on artillery officers"; that "the ordnance officers quit the enemy's country at the first opportunity, leaving the business of their department to be closed in many respects by artillery offi-

cers"; and citing a particular case where an artillery officer, who was obliged to sell ordnance supplies, lost a large sum of money, "for which we believe (says Reply) he is held accountable by the Ordnance Department to this day." The very cause assigned by the reply, for the ordnance duties being thrown upon artillery officers, viz, "the officers of the department *being placed on artillery duties*," entirely exonerates the Ordnance Department from all blame in the matter, if there be any blame at all. All ordnance officers with an army in the field, are, while so serving, withdrawn from the control of the Ordnance Department; they are exclusively under the orders of the commander of the army they serve with; him they are to obey by performing such duties as he places them on, without setting themselves up as judges of the propriety of his orders. If they were ordered to do artillery duties, and obeyed those orders, neither is the Ordnance Department responsible for giving the orders, nor the ordnance officers for obeying them. As regards the ordnance officers quitting the enemy's country, every person, at all conversant with military rule, knows that officers of every branch of the service, assigned to do duty with an army in the field, can only be relieved, or transferred, through the orders of the general or other officer commanding the troops. The Ordnance Department had nothing to do with the officers quitting the enemy's country, and the officers could not do it without the orders of the general or other officer commanding the troops, unless by *desertion*, which I presume "Reply" hardly intends to charge. This accusation is merely an assertion without the least pretense of testimony to support it, unless the "one case" immediately after referred to, be so intended. The *facts* of that case are these, as I have them from the artillery officer who made the sales. The ordnance officer at Puebla was ordered to the city of Mexico. Before leaving Puebla, he sought to make arrangements for the proper care of the public property in his charge, and the artillery officer agreed to take it in his care. The invoices and receipts were, however, in the name of an ordnance officer, who was alone responsible for the property. Thus it stood until, on the eve of evacuating Puebla, the general commanding the military department ordered the sale of these stores. The artillery officer, who had taken them under his care, sold them, and, although he was not charged with them, nor responsible for them, he was too honorable to take advantage of such plea, but made his return of sales to the Ordnance Department, stating that the property stood in the name of the ordnance officer, who should receive credit for it; but that *he*, who received the proceeds of sale, held himself accountable for the money. With the return of sales, he sent testimony in explanation of the loss of a part of the money. So far from the Ordnance Department holding him "accountable to this day," it sent his return of sales to the accounting officer of the Treasury for settlement, with a letter from the Chief of that Department, of which the following is an extract: "As regards the report of the board of survey relating to the *loss of* part of these proceeds of sale, had the loss been that of the stores before they were converted into money, I should at once recommend that Captain ——— be relieved from the charge, such a case being provided for by the 94th article of Ordnance Regulations: and as there appears to be no difference in the equity of the case, I recommend that he be credited for the money so lost."

The several specifications adduced as *proof* that the "Ordnance Department had been deficient in rendering the services due from it," have now been met and disposed of. Not one of them has the least foundation in fact, save the single case of carelessness in packing a few supplies on the part of a young lieutenant, whereby some priming tubes

were injured. The laborious researches of "Reply" into the delinquencies of the Ordnance Department to sustain the general charge have resulted in this alone.

"Parturiunt montes, nascetur ridiculus mus."

It is not to be supposed that this attack on another branch of the army is at all the work of or is countenanced or approved by *the artillery*. No; that corps, as a body, would never condescend to undertake, or to notice in any other way than with condemnation the undertaking, to hunt up causes of accusation against another, even to the raking up, after the lapse of years, of the small peccadillos of its young and inexperienced officers, in order to blazon them before the public as instances of grave misdemeanors in an entire department of the army, tending to prejudice in public estimation the whole military establishment. But if the mere fact of preferring such groundless charges be worthy of condemnation, what will be thought of imputing a motive so execrable as that which immediately follows? The charge is of defective and deficient supplies "through inability or a want of sympathy with a rival corps." The author of the reply by citing "the beautiful and perfect modern material," and "the ample supply of the best ammunition," furnished soon after to the army on the Vera Cruz line, shows clearly that he discards the idea of "inability." The accusation then stands, with the motive clearly charged, of "want of sympathy with a rival corps." Put in plain language, it charges that the Ordnance Department purposely, in order to cause the failure of a rival corps, sent bad guns and appendages and inadequate supplies of ammunition to an army that was about to meet the enemies of the country. It jeopardized the lives of the soldiers, and sought to bring defeat and disgrace on the army and on the country, from its "want of sympathy with a rival corps," which it thus sought to injure. This is the plain meaning of the charges, with the imputed motive. They will bear no other construction; and yet, it is not in my nature to believe they were so intended. Their full scope and bearing were not considered; they must have been hastily and indiscreetly penned. Cool reflection will teach their author his error. It was an error into which men may be betrayed by hasty and inconsiderate impulses. Let the mere exposure of the error be sufficient—let every excuse be made that the broadest charity can devise, and for the rest, let the mantle of oblivion cover it forever.

As the Monterey mortar case is again brought forward, I must briefly notice that matter. In the circular letters to be signed by artillery officers complaint is made of their want of practical skill and information in their profession, and one of the remedies suggested is to station them at arsenals. The case of the Monterey mortar is therein adduced, and stated thus: "At Monterey a mortar was used by an ordnance officer, but was afterwards given to and more efficiently used by an artillery officer." This statement was binding on those who used it, and whatever might be the facts in the case *they* were not at liberty to deny it. I took it as they presented it, and without admitting or denying its correctness, which was not then requisite for my argument, I showed that it made against their suggestion in regard to stationing the artillery at the arsenals—for here was an officer who had been stationed at an arsenal for a long time—yet with less practical skill as an artillerist, according to the circular letters, than one who had not been at such a station. Hence these *stations* did not impart the skill, if the fact stated in the circular letters was admitted. The reply now exonerates the ordnance officer from any want of skill as an artillerist, and attributes his defi-

ciency referred to in the circular letters to the failure of the Ordnance Department to furnish a platform for the mortar. It would have been more fair to have stated the cause at the time the contrast in the service of the mortar was drawn. But it seems *there was a platform*, "which had been brought as far as Camargo and left there." Was it the fault of the Ordnance Department that it was left there and not carried to Monterey? The true statement of facts as they actually occurred fully accounts for its being left. All the means of transportation that it was possible to provide were furnished by the proper department, and apportioned, by direction of the commanding general, to special purposes. That portion which fell to the Ordnance Department was not sufficient to carry *all the articles* that it had provided. Those of primary importance were, of course, preferred, and left no room for the platform without throwing out supplies of indispensable necessity. A mortar platform is not necessary for the proper service of a mortar, except on yielding ground; it is the work of but a short time, and there are few places where the materials for making one cannot be obtained. Indeed, the materials for a temporary one were obtained, and the platform made; thus proving the wisdom and propriety of leaving it behind, instead of carrying it forward to the necessary exclusion of more important and essential supplies. Was this an instance of failure by the Ordnance Department to perform its duties, as is charged and asserted? The contrast drawn between the service of the mortar by the ordnance and the artillery officer was unjust to the former; for although it was no part of his business to be a practical artillerist, the comparison thus publicly instituted with reference to occurrences on a field of battle was calculated to induce the inference that he had failed to do something at the battle of Monterey which it had been necessary to put in the hands of another officer to accomplish. Now it is well known to all who served on the Rio Grande that that officer discharged all his duties with conscientious fidelity, with zeal, and accuracy. General Taylor, in an official letter to the Adjutant-General of the army, dated 24th November, 1847, invites attention to his case, and says of him, he "has now been more than two years in the performance of arduous field duties, and he has discharged all his functions with credit to himself and advantage to the service." His connection with the service of the mortar was as a volunteer, at the request of the chief of artillery, and that officer has stated under his own hand that the paragraph in the circular letters did the ordnance officers injustice, and that he understood "it was expunged by parties concerned in the memorial from their own sense of what was proper and just."

There is a paragraph at page 31 of the reply, which is intended to make me appear as contradicting myself in my review of the memoir. It reads thus: "We are told on page 24" (of the review) "that the proposed rule of promotion is 'nothing new,' and on the very next page that it is 'new-fangled,' and would be 'an experiment.' As we do not know how to answer both these objections at once, we will acknowledge that we are silenced on this subject." Now whoever will take the trouble to refer to the memoir, which was the subject of my review, will there find—paragraphs IV and VI, pages 14 and 15—two separate and distinct rules of promotion proposed: the one rule nothing new, and the other new-fangled and an experiment. These two rules were so characterized in the review, and if "Reply" dislikes both objections at once, he should not have proposed both rules in the same plan of organization.

What is said in the reply, on the brevet subject, seems put for-

ward with the point of a personal reflection. In thus aiming at one, the "Reply" should remember that his shaft may hit many, and among them some, his personal knowledge of whose character must place them, in his own estimation, far above the reach of such attacks. I had alluded to the memoir's scheme of second captains, as a wholesale mode of brevetting surpassing the results of the Mexican war. Now, as the abuse of the brevet system during and at the close of the war is almost proverbial, an allusion to it was natural and innocent. But the "Reply," apparently, resents the remark, which he considers a "disparaging allusion," a "covert sarcasm" at the brevet system, while he admits it to be "partially right," and adds that it is but "too true" that officers have received brevets "for Mexican war services" "who never heard the whistling of a Mexican bullet." This lively and poetic expression can mean nothing but that brevets have been given to those who have not deserved them, which is going quite as far, and speaking out a good deal more plainly than the reviewer. If the facts be so, although it was not charged in the review, it is a great abuse, and ought to be exposed, and, if possible, corrected. But the "Reply" is not very consistent, or logical, when he carps at the review for alluding to an abuse which he himself admits and exposes. As to the "proper degree of contempt" which he states the army generally to feel, both for those who took brevets not earned, and those who comment on the granting of *such* brevets, I can only say that he attributes to the army generally, a style of sentiment and argument on this subject peculiar to himself. Has he collected the sense of the army? Or does his own mind furnish that infallible and exact standard of feeling and judgment by which all other men may be measured? The brevet system, in itself, may be and is good; the abuse of it is quite another matter. That abuse, like every other, should be noticed and exposed by some one. Those who have been the subjects of it to their advantage and advancement, are not likely, and cannot be expected, to do so. Those who have received brevets worthily, should be restrained by modesty from instituting a comparison of their services with those of others, which an exposition of the abuse of the system would render necessary. There then remains but one class to expose the abuse, those who have received no brevets; and they must speak, or let the abuse go unnoticed, unproved, and uncorrected. Even, then, if the reviewer had intended, in his remarks on the "second captains" scheme, to allude to the abuses of the brevet system, it would not have been unbecoming in him to do so, while modesty should have restrained one so covered with such honors (fairly and gallantly won, I doubt not) from casting in the teeth of those who were kept back from a chance of winning them, because their services were considered more valuable to their country elsewhere than in the battle-field. The allusion to their seeking to keep away from the seat of war, implied in the remark that they "kept safely at home, and thought as seriously of crossing the Styx as the Rio Grande," is both unjust and ungenerous. The wit of the expression, and the opportunity of a classical allusion, were, perhaps, too powerful inducements for the judgment of the "Reply" to withstand. This might be some excuse were the wit original. But it is an old joke of the late Colonel Duncan about the members of a court-martial that tried him, "as soon thinking of crossing the Styx as the Wtilacoochee." The wit originally was not very brilliant, and its brightness is much dimmed, now that it shines with a borrowed light. The "Reply" is inconsistent, too, in abandoning here, what he has before so strenuously contended for, that the "users" should be the "fabricators." As he insists on using in war only the weapons of his own fabrication, and illus-

trates it in his arguments by fabricating the facts he uses, it is rather inconsistent in him to use the wit "fabricated" by another.

The "Reply," in conclusion, regrets that his memoir was not received by me in the spirit in which it was intended. I can only judge of its intention by its actual propositions and assertions. The leading proposition was the destruction of the Ordnance Department, by merging it in another corps. To effect this, it was clearly and distinctly asserted that the ordnance was the cause of the professional ignorance and want of skill of the artillery; that the Ordnance Department sought to keep down the artillery from a feeling of rivalry and "antagonism;" and a direct charge was made upon it of failure to perform its appropriate duties, with the motive of injuring the artillery. However such propositions and such assertions may have been intended, it cannot be expected that the Ordnance Department should regard them as offered in a kindly spirit towards it. I undertook to defend the department to which I belong; to that I have confined myself, attacking no other branch of the service. If, in doing so, I have been compelled to turn, sometimes, on the assailant of my corps, and to hold up his errors and mistakes to open view, it was because I considered it necessary for defense. I acknowledge the soundness of "Reply's" opinion in regard to discussions of army affairs by officers. I am well aware that such discussions tend not to advance the interests of the army; but whatever may be the effect, this much is certain, that the Ordnance Department has only stood on the defensive, and merits no censure for any injury that may result to the service. It will certainly receive none from such discussions on my part hereafter, as this is the end of my first offense in this respect.

[EXTRACT.]

Abstract of materials, &c., expended or consumed at Fort Brown, Texas, during the quarter ending June 30, 1846.

Expended or consumed.	Hand-spikes.	Pack-boxes.	Linestocks.	Port-fire stocks.	18 pounder balls.	18 pounder case-shot.	18-pounder cartridges with sabots.	18-pounder canister shot, fixed.	Tubes.	Port-fires.	Slow-match, pounds.	Rifle-powder, pounds.	18-pounder cartridge-bags.	Mauls.	Packing-boxes.	Brooms.	18-pounder cartridges.
Expended in action .....	..	..	..	..	370	17	365	19	450	114	18	4	..	..	..	22	From 3d to 9th May.
Destroyed by enemy's shot and shells	2	4	1	2	..	..	..	..	905	..	12	..	..	1	..	..	..
In firing salutes .....	..	..	..	..	..	..	..	..	41	..	..	41	..	..	..	..	..
Used in making bomb-proofs .....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	60	..	..
Worn-out in service .....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8	..
	2	4	1	2	370	17	365	19	1,396	126	18	4	41	1	60	8	22

I certify that the above abstract is correct, and that the stores therein referred to have been issued and expended for the above purposes by my orders, agreeably to the 54th, 55th, and 149th articles of the regulations.

A. LOWD,

Captain Second Regiment Artillery, Commanding.

NOTE.—The packing-boxes were used for the purpose of hastily constructing temporary bomb-proofs to shelter the men from the enemy's shells, there being no timber or other materials on hand for the purpose.

[EXTRACT.]

Return of ordnance and ordnance stores, received, issued, and remaining on hand at Fort Brown, Texas, commanded by Capt. A. Lowel, Second Artillery during the second quarter of 1846.

18-pounder iron guns, sieges.	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
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PORT BROWN, TEXAS, June 30, 1846.

I certify that this return exhibits a correct account of the public property in my charge during the second quarter of 1846.

A. LOWEL

Captain Second Regiment Artillery, Commanding Post.

NOTE.—There were other ordnance stores included in this return, but they were received subsequently to the siege of the fort. They are therefore not included in this extract, which embraces only such as were furnished before and used during the siege.

[35 W. D., 1852.]

NEW YORK ARSENAL,
February 5, 1852.

SIR: I have the honor to acknowledge the receipt of General Order No. 2* of the 24th ultimo, and I beg leave to ask some information respecting the bearing of the order on me as the commanding officer of this arsenal.

Regulation 2 of said order directs that "the official correspondence of all officers of the staff serving with troops, whether in garrison or in the field, shall be conducted through the commanding officer."

In my opinion, the meaning of this regulation has reference to the assistant quartermasters, commissary and medical officers, properly constituting the staff of a garrison, and to all staff officers serving with troops in the field. The buildings and property of this arsenal are located on Governor's Island, still, in the performance of my various duties, I have no more connection with the troops forming the command of Fort Columbus than have Majors Cross, Lendrum, Delafield, and Leslie, whose offices as quartermaster, commissary, engineer, and paymaster are in New York. Under these circumstances, therefore, I desire to be informed whether my official communications must be submitted to the commanding officer of Fort Columbus for his examination and approval.

In making this inquiry, my object is not to controvert the regulations, but to understand precisely my position; for when Colonel Gardner came, on the receipt of the order to make an inspection of my books.

* [General Orders, No. 2.]

HEADQUARTERS OF THE ARMY,
ADJUTANT-GENERAL'S OFFICE,
Washington, January 24, 1852.

I. The following regulation received from the Secretary of War is published for the government of the army:

WAR DEPARTMENT,
January 24, 1852.

The "circular" from the War Department of November 2, 1849,* is hereby revoked; and the following regulation will be published in general orders as a substitute:

Regulation.

1. The assignment of all officers of the general staff and of staff corps of the Army to posts and stations, or to any duty, and their relief therefrom, shall hereafter be announced in orders from the headquarters of the army.

2. The official correspondence of all officers of the staff serving with troops, whether in garrison or in the field, shall be conducted through the commanding officer.

3. It shall be the duty of every such commanding officer to enforce a rigid economy in every branch of the service, and, for that purpose, he may at any time inspect the expenditures and accounts of disbursing officers and all requisitions for supplies made by them.

C. M. CONRAD,
Secretary of War.

II. In promulgating the foregoing, the General-in-Chief calls the attention of generals of divisions and inspectors-general to the General Regulations, relative to *inspections*, and he directs that the requirements thereof be strictly observed. See paragraphs 53 and 970.

By command of Major-General Scott.

R. JONES,
Adjutant-General.

* See note at foot of page 338, ante.

and papers, without questioning his right, I immediately gave him free access to the same.

Respectfully, I am, sir, your obedient servant,

W. A. THORNTON,
Bvt. Major, U. S. A., Commanding Arsenal.

Col. H. K. CRAIG,
U. S. Corps of Ordnance.

[1st indorsement.]

ORDNANCE OFFICE,
February 7, 1852.

There is no doubt in my mind that Bvt. Major Thornton is *not* "an officer of the staff serving with troops," but an officer commanding an arsenal, which, although on the same island with the fort, is entirely distinct from it. The case seems to me to be covered by the Secretary of War's decision of the 13th January, 1852,* that the arsenal "[at Fort Monroe]" is a permanent establishment, and although within the limits of the fort is entirely distinct from it. The arsenal on Governor's Island is a permanent establishment, and is not even within the limits of the fort; but has limits of its own, on the island, clearly defined; its commanding officer is Bvt. Major Thornton and not Bvt. Colonel Gardner. In order that the matter may be settled, so as to leave no room for Colonel Gardner or others to raise a question about it, I respectfully submit it to the Secretary of War for decision.

H. K. CRAIG,
Colonel of Ordnance.

[2d indorsement.]

Approved:

C. M. CONRAD,
Secretary of War.

February 19, 1852.

[28 C, 1852.]

TREASURY DEPARTMENT,
Second Comptroller's Office, February 14, 1852.

SIR: I have fully re-examined the question alluded to in your communication of the 18th December last, relative to the allowance of double rations to officers commanding arsenals and armories, decided by me in the case of Major Symington on the 16th December.

The history of the decisions that have been made on this question is somewhat remarkable. The act of 23d August, 1842, expressly restricts this allowance to officers commanding posts *garrisoned with troops*. The appropriation acts of 1849 and 1850 restored it in terms to officers commanding arsenals and armories. In relation to the first of these acts, on the 5th April 1849, the then Comptroller, Judge Parris, decided, on reference of the question from the Secretary of War, that its operation was confined in this particular to the year for which the appropriation was made, and this decision was confirmed by Mr. Crawford, Secretary of War.

On the 5th of April, 1850, however, on another reference of the question from General Talcott Chief of the Ordnance Department, Judge Parris decided that this portion of the act of 1849 was to be regarded as a legislative exposition of the 6th section of the act of 1842, and as

* *Ante*, p. 434.

establishing arsenals and armories as permanent and fixed posts, garrisoned with troops; and that until a different intention should be manifested by Congress the allowance of double rations to officers commanding these posts might be continued.

On the 24th July, 1851, the same question arose before Judge Hall, then Comptroller, and he decided, in conformity with the first decision of Judge Parris above-named, that the operation of the provision of the acts of 1849 and 1850 was confined to those fiscal years, and that at the expiration of that period (the appropriation act of 1851 containing no such provision) the act of 1842 was again in force, and the allowance could not be continued. But on the 28th July, 1851, upon the last decision of Judge Parris being brought to his notice, and learning that it was in pursuance of that decision that the clause contained in the acts of 1849 and 1850 was omitted from that of 1851, Judge Hall held that the question was no longer an open one, having been settled by his predecessor, and that he should acquiesce in that decision, and continue the allowance in conformity with it. Of these decisions, only the first one made by Judge Parris was brought to my notice when the case of Major Symington was disposed of. Fully satisfied of the correctness of that opinion, and believing that the subsequent action here had been in conformity to it, I decided Major Symington's claim accordingly.

I am still, upon full consideration, of the same opinion. I cannot doubt the correctness of the views of Judge Parris and Judge Hall as expressed in their first opinions, and regret that that decision was subsequently withdrawn. But finding that the question has since been definitely settled otherwise by both my predecessors, that the action of the Ordnance Department has been accordingly, and that the provision for the benefit of these officers has been omitted from the appropriation bill of 1851, in pursuance of it, I do not feel at liberty to regard the question as an open one, or to decide it upon my individual opinion.

There would be no propriety in changing the course of this office upon the subject, where it has been deliberately settled and acted on to such an extent.

I have, therefore, against my own views, but on the ground that the question has been previously settled and ought not now to be disturbed, directed the allowance of Major Symington's claim, as well as that of the other ordnance officers arising under the same circumstances.

Very respectfully, sir, your obedient servant,

E. S. PHELPS,
Comptroller.

Col. H. K. CRAIG,
Ordnance Department.

[Letters to W. D., vol. 10, p. 256.]

ORDNANCE OFFICE,
Washington, March 23, 1852.

SIR: I have to acknowledge the reference to this office of a resolution of the Senate directing the Secretary of War to report to that body "any information in his possession touching the necessity of establishing suitable depots for the preservation of the gunpowder belonging to the United States, and whether the public service requires the establishment of such depots." The subject of establishing a depot for the reserved powder not wanted for ordinary use in some secure place, and where

the least possible injury would result from explosion, engaged the attention of the War Department some ten or eleven years since. An inquiry into the propriety of establishing such a depot, together with an examination of a proper site therefor, was entrusted to a board composed of the General-in-Chief of the army, the Chief Engineer, and the Inspector of Armories and Arsenals. The report of that board was published, and is to be found in Executive Document No. 2, Second session, Twenty-seventh Congress (vol. 1, pages 341 to 344).

The measure then recommended by the board has lost none of its importance since. The public service requires the establishment of such depots more now than then; for the increase of population in the vicinity of the stores of gunpowder at the arsenals has increased the risk to personal safety, and also the hazard to which the stores are exposed by such contiguity. This proximity of magazines of gunpowder has also been complained of by property-holders in the immediate vicinity, as injurious to the value of their property. This inconvenience and danger have caused remonstrances against the evil in some cases, and petitions for the removal of these deposits of gunpowder. So great was the anxiety of the people in the neighborhood of Saint Louis Arsenal, that it became necessary about a year ago to adopt measures for removing the powder magazines from that arsenal to the reserved military lands some seven miles from the city. One magazine has already been built on the site selected, and a second commenced. The two will store about 10,000 barrels of powder, as much as it may be advisable to provide for in that part of the country at present. The site will readily admit of additional magazines, should it become desirable to increase the deposit in that quarter.

The place suggested by the board, whose report I have before referred to, as a site for the depository to supply the Southern and a part of the Gulf coast, is, in my judgment, altogether suitable. Two large magazines, capable of storing conveniently 5,000 barrels each of gunpowder, would be sufficient there, one of which should be erected soon.

The views of the board in regard to the main depot are full and judicious, and leave nothing to be added on that subject. The amount of storage ultimately to be provided will not probably be required for many years, and, under present circumstances, I do not think it would be advisable to do more than purchase the land, and erect *two*, or, at most, *three* magazines. The total supply of powder which, it is estimated, should be provided and kept in store for all military purposes, including supplies for the forts erected, in progress, and proposed, may be stated, in round numbers, at 90,000 barrels.

We have now at the arsenals, independently of the supplies in charge of the troops in garrison and in the field, about a million and a quarter of pounds of powder in casks, and about half a million of pounds made up into ammunition for cannon and small arms; in all about one and three-quarter millions of pounds, or 17,500 barrels. In addition, there are supplies of niter and sulphur at the arsenals sufficient to manufacture about four millions of pounds, or 40,000 barrels of powder. These materials can be kept in their present depositories without danger. I inclose a statement showing the quantity of powder now in store at the arsenals in the vicinity of some of our large cities and near the dense and increasing population. I may state in this connection, that my attention has recently been called to the necessity of having a fire-proof magazine for the storage of the powder required for the Pacific coast. The provision now made for this purpose is temporary and unsafe, and I propose, as soon as I can obtain the necessary data, to sub-

mit an estimate for a permanent fire-proof magazine to be located at Benicia.

The resolution of the Senate is returned herewith.

I am, sir, with respect, your obedient servant,

H. K. CRAIG,
Colonel of Ordnance.

Hon. C. M. CONRAD,
Secretary of War.

[132 W. D., 1852.]

ADJUTANT-GENERAL'S OFFICE,
Richmond, Va., June 19, 1852.

SIR: The balance due on the quota of arms coming to the State will be most acceptable in the following articles, viz: 100 percussion-lock muskets, *new or present pattern*, if they can be issued. These are wanted for the State Guard, a very fine corps of enlisted men. We do not want the flint-lock muskets which have been changed to percussion. 12 non-commissioned officers' swords—the lightest. The remainder, in rifle accouterments, as flasks, pouches, belts and plates; and infantry accouterments, as waist-belts and plates, brushes and picks and breast-plates.

If the plates can be furnished without the United States stamp they would be preferred.

I do not wish to exceed 250 sets rifle and 500 sets infantry accouterments. Should this requisition not absorb the quota due the State, the balance can remain to her credit. If it exceeds the amount due, be pleased to apply the reduction to the items embracing rifle and infantry accouterments.

The articles to be delivered at Richmond.

Very respectfully, your obedient servant,

WM. H. RICHARDSON,
Adjutant-General of Virginia.

Col. H. K. CRAIG,
Colonel of Ordnance, Washington.

[1st indorsement.]

ORDNANCE OFFICE,
June 22, 1852.

The 109th article of Ordnance Regulations restricts the issue of arms to the States to those manufactured at private armories. The rule, however, has not been rigidly adhered to, but should not be departed from without proper sanction; which is respectfully asked for authority to issue 100 national armory percussion muskets, agreeably to within request of Adjutant-General Richardson, as they appear to be wanted for a particular purpose.

H. K. CRAIG,
Colonel of Ordnance.

[2d indorsement.]

Approved.

C. M. CONRAD,
Secretary of War.

JUNE 29, 1852.

Remarks on Breret Maj. Thomas Williams' requisition for ordnance and ordnance stores for Fort Mackinac, dated June 25, 1852, forwarded through Major-General Wool, and approved by him.

After examining this requisition, as required by the 78th article of Ordnance Regulations, I recommend that it be not complied with, for the following reasons:

It is extravagant in the number and quantity of articles it calls for, viz, 4 siege cannon, 6 seacoast cannon, some of them of the largest caliber, intended for use only in the heaviest batteries of permanent fortifications, and a complete field battery such as is only furnished to and required for use by a *light artillery* company; being in all 16 pieces of artillery, with carriages, caissons, battery-wagons and implements, equipments and tools. Also, 2,500 rounds of artillery ammunition, embracing all the varieties of shot and shells, canister, grape, and spherical case; 50 heavy war rockets with iron cases and a stand for firing them; 2,500 pounds of cannon powder, and 54 sabers, belts, and saber knots, which, by General Orders from headquarters of the Army (Nos. 5 and 6 of 1850) are provided for *light artillery* companies only. It also calls in general terms, and without specifying the particular articles wanted, for "implements, materials, measures, &c., for driving fuzes, loading shells, and fixing ammunition"—that is, for a set of laboratory tools and utensils such as are not used anywhere but at an arsenal—for the machines and implements used in the mechanical maneuvers of *all* the pieces required, and suggests the addition of "one each of the several artillery knots, loops, and hitches, and of the several kinds of fire-works for peace and war." These articles, required for a single company of artillery armed with muskets, would be enough for the instruction of the four regiments of artillery, including a course of laboratory instruction. It is extravagant, also, in the expense to which it would subject the government to comply with it and similar requisitions. The articles specifically called for (not including those mentioned in general terms, which are very numerous), will cost \$21,295, and it would cost the Quartermaster's Department about \$3,510 to transport them to Mackinac; making \$24,805 expense for arms and equipments only, for the use of a single company of artillery. To supply all the artillery companies at this rate would require more than a million of dollars, and would render necessary exorbitant appropriations, far greater than this department would feel justified in estimating for, or than it would expect to receive if it did estimate.

None of the articles on the requisition constitute a part of the armament of Fort Mackinac. It is a small post, and there are there now two 12-pounder brass guns mounted on field carriages, and five 6-pounder iron guns mounted on truck (block-house) carriages. The requisition calls for *casermate* guns and carriages, and there are no casemates at the fort; it calls for heavy *barbette* guns and carriages, and there are no parapets and no traverse circles or other arrangements for mounting them. If the articles required were sent, most of them could not be used unless a new fort at Mackinac were previously erected, of which I believe there is no intention. Neither just and proper views of economy nor existing appropriations will admit of a compliance with the requisition. If it be pronounced necessary by competent authority to provide for the instruction of each separate garrison of artillery troops to such an extent, or anything approaching it, it will be requisite, as a preliminary step, to obtain special appropriations for the object, and the instruction will cost very dear.

This department is always willing and anxious to supply everything coming within its province to furnish that which is really wanted for the military service; but it is bound to examine all requisitions and to "modify and regulate them in such manner as to curtail all extravagances, to suit them to the exigencies of the service, to existing appropriations, and to just and proper views of economy." In the performance of this duty I am compelled to make these remarks on this requisition of Brvt. Maj. Williams, and I specially refer and call attention to two previous requisitions of the same officer dated November 25, 1851, and April 25, 1852, with my remarks thereon, now on file in the Adjutant-General's Office, from which it will be seen that most of the articles have been twice previously required and refused by the commanding general. I refer also to the accompanying statement, showing the weight and cost of the articles named in the requisition.

H. K. CRAIG,
Colonel of Ordnance.

ORDNANCE OFFICE,
Washington, July 10, 1852.

ADJUTANT-GENERAL, U. S. ARMY.

[Letters to W. D., vol. 10, p. 296.]

ORDNANCE OFFICE,
Washington, July 13, 1852.

SIR: I have to acknowledge the reference to this office of a letter from the Hon. A. G. Brown, asking for "a list of the patents for the use of which the War Department has been, or is now, paying the patentee, together with the amount paid in each case respectively"; and in obedience to your directions, respectfully report as follows:

The Ordnance Department is not now paying any patentee for the use of their inventions.

The right to use inventions has heretofore been purchased and paid for by this department, from the following persons, viz:

Thomas Blanchard.—For the use of several machines for turning or cutting irregular forms, constituting in the whole what is generally known as the gun-stock turning machine, with the several improvements. For the use of, and in connection with, this invention, there has been paid to Mr. Blanchard by this department—

For the privilege of using the same.....	\$18,921 58
For labor, castings, machinery, &c.....	3,231 89
For stocking muskets under agreement.....	17,665 05

Making a total paid him of	39,818 52
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J. H. Hall.—For the right to make and use his patent breech-loading rifle and carbine, and all the machinery for making the same, there has been paid to Mr. Hall and his heirs, the sum of \$37,553.32, being for the use of his invention, and for personal services of J. H. Hall; and assessed in the ratio per annum, of \$1,000 for personal services, and \$1,600 for use of inventions.

Dr. E. Maynard, March 20, 1845.—For the right to make and use his improved lock and percussion priming for small-arms, and to apply the same to 4,000 muskets, there has been paid to Dr. Maynard \$4,000. This right has not been exhausted, 2,000 muskets only having been arranged

on this principle. The right to use the invention and apply the same to a greater number of arms at a reduced scale of price has been secured, and may be used if deemed advisable as follows, viz:

For 10,000 muskets.....	\$7,500
For 20,000 muskets.....	10,000 •
For 100,000 muskets.....	25,000

Any greater number, at a price to be agreed upon, not exceeding 25 cents for each musket.

J. B. Hyde, December 1846.—For the right to make and use Hale's patented war rocket to an unlimited extent, for the military service, \$10,000.

S. Mower and W. H. Scorille, attorneys of P. W. Gates, September 5, 1848.—The right to make and use in all establishments of the Ordnance Department Gates's patent dies for cutting screws, \$750.

Several patent arms and various patented machines have been purchased and are in use at the armories and arsenals, but as the right to use them is a consequence of the purchase, no mention needs be made of them.

In this connection it may, perhaps, be proper to state that the right to use several inventions has been purchased for the general service of the United States by special act of Congress in each case.

Mr. Brown's letter is returned herewith.

Very respectfully, your obedient servant,

H. K. CRAIG,
Colonel of Ordnance.

Hon. C. M. CONRAD,
Secretary of War.

[32 W. D., 1853.]

ORDNANCE OFFICE,
Washington, November 3, 1852.

SIR: The decision of the Second Comptroller, dated the 10th September, 1852, to which my attention has been called by the letter of Lieutenant Benét, of the Ordnance Department, herewith inclosed, being in my opinion founded in error, I respectfully appeal to you for its correction.

The question that *acting* assistant commissaries of subsistence are entitled to the additional compensation allowed by the sixth section of the act of April 14, 1818, was settled by Secretary Poinsett's decision in 1841; which decision, the Comptroller admits, has ever been acquiesced in, and which he does not propose to interfere with by any action of his office. That decision, therefore, is now in force. But the Comptroller disallows the additional compensation to officers of the Ordnance Department, solely on the ground of the restriction in the law which requires assistant commissaries to be taken from "the line of the army," and because, he says, in no sense can the Ordnance Corps be considered as belonging to "the line." The correctness of the decision, therefore, is narrowed down to the question, Does the Ordnance Corps belong to "the line"?

The whole army of the United States is made up of the line and the staff, and the Ordnance Corps is part of that army; that corps must, therefore, be either staff or line. The law creating the United States army is the "Act to reduce and fix the military peace establishment of the United States," approved March 2, 1821. The first section of that

act declares that the military peace establishment of the United States shall be composed of artillery, infantry, engineers, ordnance, *and staff*. The law, then, makes the engineers and ordnance as distinct from the staff as it does the artillery and infantry; and I know of no other law, and assert that there is none, which makes the Ordnance Department a part of the staff of the army. Not being staff, therefore, and being part of the army made up of staff and line, it must be line. I am aware that it is customary to call the ordnance a "staff corps," but that custom has arisen from a loose way of speaking; it is not sanctioned by any law, and cannot, with propriety, be used by a Comptroller to sustain a legal decision.

As the Comptroller's decision does not touch the subject of the *equity* of the allowance to ordnance officers, I have abstained from any remarks on it, although it is a point not at all difficult to establish in their favor, if necessary.

I am, sir, very respectfully, your obedient servant,

H. K. CRAIG,
Colonel of Ordnance.

HON. C. M. CONRAD,
Secretary of War.

[Inclosure.]

SECOND COMPTROLLER'S OFFICE,
September 10, 1852.

SIR: Your communication of 6th April last, inquiring whether acting assistant commissaries of subsistence appointed from the corps of the staff, engineers, ordnance, and from assistant surgeons of less than five years' standing, can be paid the additional compensation of \$20 per month provided by the act of April 16, 1818, was accidentally mislaid or it would have received an earlier answer.

In reply to the inquiry, I have to say that acting assistant commissaries appointed from the corps above mentioned are *not* entitled to the extra compensation. In my opinion the law above referred to which authorizes this compensation confines it to assistant commissaries only who are regularly appointed by the President and required to give bonds, and does not extend to acting assistant commissaries, whose appointments are of a totally different character, and are not authorized by this act or embraced in its provisions. But as the contrary decision of Secretary Poinsett in 1841 has ever been acquiesced in, I do not propose to interfere with it at this time by any action of this office. It clearly follows, however, that if acting assistant commissaries are within the provisions of this act so as to entitle them to the extra compensation, they are also within its restrictions, which requires them to be appointed from the "line of the army"; and in no sense can the corps above named be considered as belonging to "the line."

Respectfully, your obedient servant,

E. S. PHELPS,
Comptroller.

Col. LARNED,
Acting Paymaster-General.

[Indorsement on letter of Colonel of Ordnance, November 3, 1852.]

I do not see that the charge is authorized by law.

C. M. CONRAD,
Secretary of War.

WAR DEPARTMENT, February 11, 1853.

ORDNANCE OFFICE,
Washington, November 2, 1852.

SIR: I have the honor to submit the following report of the principal operations of the Ordnance Department during the last fiscal year, with such remarks and suggestions as the affairs of the department appear to call for.

FISCAL AFFAIRS.

Amount, as per last year's report, undrawn from the Treasury on the 1st July, 1851	\$710, 128 81
In hands of disbursing officers at the same date	110, 181 76
Amount of appropriations for the fiscal year 1851-'52, including the fixed annual appropriation for arming and equipping the militia	982, 186 00
Received during the year from damages to arms in the hands of the troops, chargeable to them, and from all other sources not before mentioned	113, 397 51
Total	1, 915, 894 08
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Amount of expenditures during the year	1, 241, 982 48
In hands of disbursing officers 30th June, 1852	97, 019 54
Remaining in Treasury undrawn, same date	576, 892 06
<hr/>	
Total	1, 915, 894 08

The accounts of all the disbursing officers of the department have been regularly rendered, examined, and transmitted to the proper accounting officer of the Treasury for settlement. The estimates for the next fiscal year have been carefully prepared, and include only objects of primary importance, fully explained in the remarks appended.

ARMAMENT OF FORTIFICATIONS.

There was no appropriation made for this object for the fiscal year ended June 30, 1852. The operations of the department under this head were, therefore, limited to the means furnished by unexpended balances of former appropriations. Those means have been applied to repairing and keeping in good order the armament at the forts; to furnishing the regular supplies of ammunition; to paying for heavy cannon, shot, and carriage timber, delivered on previous orders, and to the manufacture of seacoast and garrison carriages at the arsenals, so far as the seasoned timber on hand, and the available means for employing workmen, would permit. The principal articles procured by purchase and fabrication at the arsenals are as follows, viz: 32 32-pounder guns; 28 32-pounder barbette carriages, complete; 8 24-pounder barbette carriages, complete; 11 24-pounder howitzer carriages, for flank defense; 1 8-inch columbiad barbette carriage; 1 10 inch columbiad carriage; 30 32-pounder barbette top-carriages; 16 24-pounder top-carriages, for flank defense; 41 32-pounder casemate upper carriages; 1 18-pounder barbette chassis; 1 pent-house; 20,977 32-pounder shot; 30,928 cubic feet of timber for seacoast carriages.

The expenditures from the appropriation for armament of fortifications during the year amount to \$77,999.74.

In my last annual report I remarked on an erroneous idea apparently entertained by those not conversant with the subject, that the operations of the Ordnance Department, under this head, were so intimately connected with the system of fortifications, that a discontinuance or abridgement of the system affected in a similar degree the necessity of

providing the means estimated for under the designation of "armament of fortifications." As this idea seems to have influenced the provision last made for this object, I fear the matter is still misunderstood, and, therefore, take occasion to repeat here that portion of my last report relating to it, as I have also done, in substance, in the remarks on that item of the estimate: "Although the designation of this appropriation seems to connect it entirely with the system of fortifications, and the work under it has been carried on in reference to that system, it is by no means dependent on it; and the providing of heavy artillery, with its appropriate carriages, ammunition, and equipments, will not be the less necessary for the defense of our harbors and seacoast, even if the system of fortifications should not be prosecuted to completion. On the contrary, if permanent fortifications should be dispensed with, resort must be had to temporary batteries thrown up, as occasion may require, to guard and protect the approaches to our cities on the seaboard, unless it be determined—which is not to be supposed—to leave all points open to attack, and make no preparation for protection or defense. These batteries will require the same kind of armament as it is intended to provide for the appropriation for 'armament of fortifications,' and to a far greater amount, without being as effective for attack or defense. Whatever substitute it may turn out to be the policy of the government to make for the system of fortifications (and no substitute will, in my judgment, answer the same purpose), the use of artillery certainly cannot be dispensed with; and so far as the quantity of artillery is concerned, less will certainly be requisite with permanent fortifications than without them. It does not, therefore, follow, as seems to have been supposed, that because no means are provided for carrying on the system of fortifications, it is useless to appropriate for the armament; but the reverse is true—the fewer the points that are fortified, the greater the need of armament. Although neither forts or guns may ever be brought into actual use in *war*, it by no means follows that it is therefore useless to provide them, or that expenditures on such account are wasteful; although they may never *repel* an attack, they may prevent one."

In this connection I desire to call attention to the subject of a national armory for the fabrication of cannon and projectiles. This subject has heretofore been one of repeated inquiry, and is of acknowledged importance. The beneficial results in the manufacture of small-arms which have been derived from the national armories established for that purpose leave no doubt as to the expediency of a similar national establishment for the fabrication of cannon. The question has been so fully investigated, and elaborately discussed, in Congressional and executive reports, as to leave its warmest advocate nothing more to do than to refer to the facts and arguments in favor of the measure therein adduced. But while the expediency, if not the absolute necessity of the measure, seems to have been generally conceded, no definite action has been taken for its accomplishment. I recommend it to your notice and attention as a measure of great importance, and with the hope that it may meet your approbation, and secure your aid towards its speedy execution.

ORDNANCE, ORDNANCE STORES, AND SUPPLIES.

The expenditures from this appropriation, during the year, amount to \$180,711.38. They have been applied to the objects for which the appropriation was made, viz: the preparation and furnishing of ord-

nance supplies to the United States troops; the alteration of flint-lock arms to percussion; experiments with artillery and small-arms; and repairs of field and siege batteries. The principal articles procured by purchase, and fabrication at the arsenals, are the following, viz: 2 10-inch columbiads, experimental; 2 8-inch columbiads, experimental; 18 6-pounder carriages, with implements and equipments complete; 35 caissons, with tools and spare parts; 1,500 percussion rifles, with appendages; 1,000 percussion pistols, with appendages; 510 cavalry sabers; 584 foot officers' swords; 150 field officers' swords; 1,008 infantry cartridge boxes; 7,500 infantry cartridge-box belts; 1,866 gun-slings; 3,366 cap-pouches; 10,650 waist belts; 10,814 bayonet scabbards, with frogs; 1,949 cavalry saber belts; 2,700 carbine slings; 2,250 carbine swivels; 198 pairs of holsters; 1,484 saber knots; 412 artillery sword belts; 820 sword shoulder belts; 2,000 sword plates; 22 8-inch cannon balls; 42 24-pounder conical shells; 2,207 stands of field artillery ammunition; 89,080 cartridges for small-arms; 2,000 friction primers; 72,500 percussion caps—small size.

The number of flint-lock arms altered to percussion, during the year, is 25,274, of which there were 20,545 muskets, 3,813 rifles, and 506 pistols. The arms, ammunition, and other ordnance supplies furnished to the United States troops during the year ended 30th June, 1852, are shown in the statement hereto annexed, marked C.

Experimental firing, to test, practically, the classification of iron cannon, as heretofore made according to the relative tenacity and density of samples of the metal, and also to test the advantages of different methods of casting, has been commenced. Sufficient progress has not been made to authorize definite and reliable conclusions, but the experiments to that end are going on.

There have been also many experiments with small-arms of novel construction, represented to possess great advantages over those in use. These arms, while exhibiting much mechanical ingenuity on the part of their inventors, have not been found to possess the requisite qualities for military weapons to be used by troops. The general objects of these inventors have been to increase, first, the rapidity of fire; and, secondly, the range and accuracy of small-arms. While the first may well be regarded of doubtful utility, and even of positive injury, without a degree of coolness in the ranks and a strictness of discipline not often to be met with, and never to be calculated on, there can be no doubt of the great importance of the latter object. The French arm, "*à la tige*," and Sharp's method of loading at the breech, appear to promise better success, in effecting this object, than any other methods which have been suggested. Accordingly, the necessary experiments have been ordered, and are in progress, to fix the details of altering the musket and cavalry carbine on the "*tige*" system, with the intention that, when they are properly arranged, some arms of each kind be altered and placed in the hands of troops for trial. Some of Sharp's arms have also been ordered for a similar trial. This practical test, of actual use by troops in service, is the only reliable one, and no arm should be adopted for government use until it has been proved by a full and complete trial in this way.

A new fuse for spherical case shot has been tried at the Washington and Fort Monroe Arsenals, and the results of these trials indicate a superiority of this kind of fuse, for such projectiles, over that now in use. The perfection of this description of shot is important to enable field artillery to contend successfully with small-arms of long range; and with a view to this end, I have directed some of the shot prepared with the new fuses to be issued to the artillery for trial and practice.

ARMING AND EQUIPPING THE MILITIA.

Statement A, hereto annexed, shows the apportionment of arms to the militia under the law of 1808. That apportionment is made annually, according to the number of effective militia in each State or Territory, as far as it can be ascertained from the latest militia returns made to the Adjutant General of the army. From some of the States no returns have been received, and from others none for many years back. The requisite data for apportioning the arms as the law contemplates being thus defective, the issues cannot be made in just proportion to the existing militia force. The defect can only be remedied by regularity and uniformity in the returns, or by changing the prescribed rule for the apportionment. Experience fully shows that the former is not to be expected, and I therefore repeat my former recommendation, that the law be so modified as to make the distribution of arms and equipments according to population by the latest census, or according to representation in Congress. I also repeat the suggestion in regard to a special provision for supplying arms to the new States, which have not participated in the issues heretofore made under the law of 1808.

The expenditures during the year from the appropriation for arming and equipping the militia amount to \$263,586.68.

The principal articles obtained on this account, by purchase and fabrication at the arsenals, are as follows, viz: 10 6-pounder bronze guns; 3 12-pounder bronze howitzers; 24 6-pounder carriages, with implements and equipments complete; 4 caissons, with tools and spare parts; 4 battery wagons; 4 traveling forges; 2,000 cadets' muskets, with appendages; 9,500 percussion rifles, with appendages; 1,000 percussion carbines, with appendages; 3,000 percussion pistols, with appendages; 2,000 Colt's pistols, with appendages; 2,550 cavalry sabers; 1,000 bayonet scabbards, with frogs; 150 cap-pouches; 30 sword shoulder belts; 1,000 copper powder flasks; 375 pairs of holsters; 375 saber belts.

The quantity and kind of arms and equipments furnished to the militia during the year are shown by the annexed statement, marked B.

NATIONAL ARMORIES.

The following table exhibits the expenditures at the national armories during the fiscal year for manufacturing arms and for all other objects:

	Harper's Ferry.	Springfield.	Total.
For the manufacture of arms, appendages, tools, &c., and purchase of materials for the same.	\$197, 478 29	\$169, 074 78	\$366, 553 07
For repairs, improvements, and new machinery, including buildings, dams, &c.	44, 631 80	34, 440 89	79, 072 69
Total.	242, 110 09	203, 515 67	445, 625 76

The manufactures at Harper's Ferry Armory include 13,400 percussion muskets and 3,227 steel-barrel percussion rifles, with appendages for the same—consisting of extra cones, wipers, and screw-drivers; 2,072 assorted components for repairs of arms at other posts, and 48,473 hammers, cones, and screw-drivers for altering flint-lock arms to percussion. For the last two months of the year, manufacturing operations at this armory were entirely suspended in consequence of the overflow of the grounds and workshops by the flood of April 19th and 20th. This suspension has diminished the product of the year. To make good the damages of the flood has caused an expenditure not foreseen and not provided for

in previous estimates, to cover which an item has been included in the estimate last rendered. The manufactures at Springfield Armory include 21,800 percussion muskets, of which 2,000 are of the model in use by the cadets, with 56,620 appendages for the same, and 216,205 hammers, cones, and screw-drivers for altering flint-lock arms. Work on buildings and machinery has also been done, the description and extent of which are stated in the annexed reports of the commanding officers of the armories, which are referred to for information in detail respecting the operations of the year. The cost of the finished muskets manufactured at Springfield Armory during the year averaged \$8.74 $\frac{1}{4}$; at Harper's Ferry Armory, the cost of the muskets averaged \$9.99 $\frac{1}{4}$, that of the steel-barrel rifles, \$11.60 $\frac{1}{2}$. The inspector of arsenals and armories, during the past year, has visited and minutely and critically examined the condition and management of the two national armories. His inspection reports represents their general condition to be excellent; the operations to be conducted with skill and system; the buildings and machinery to be kept in the best order; the artisans and other workmen employed to be intelligent, and to perform their work willingly, diligently, and skillfully; and all in authority to exert their energies for the promotion of the public interest. I annex hereto copies of these inspection reports in full, to which I invite attention for a proper understanding of the condition of these public establishments under their present system of superintendence. (A recent personal inspection of the Springfield Armory enables me to speak in similar terms of the excellence of its condition and management; and my experience in the affairs of these establishments for many years convinces me, fully and entirely, that, since they were placed under the present system, many important improvements have taken place, which are, in my judgment, due to the system. The change has produced a great, if not entire, reformation of the abuses formerly existing. Like all other reformations, it has met with opposition, and the reformers have had to encounter the ill-will and hostility of those who had profited by the abuses and are interested in restoring the former state of affairs, and to contend against their personal endeavors to effect that end, as well as the influence they could command in other quarters.) A full and thorough inquiry into the merits of the two systems will, it is confidently believed, convince any unprejudiced person of the superiority of the present system over that which preceded it. Such has been the effect of the two investigations heretofore made—the one by a board composed exclusively of civilians, the other by a military court of inquiry. I refer with confidence, in support of my opinion, to the facts elicited by those investigations, to be found recorded in public documents (Executive Doc. No. 207, second session twenty-seventh Congress, and Senate Doc. No. 344, first session twenty-ninth Congress), and ask that no action calculated to effect a change may take place, at least until preceded by such an inquiry, and found therefrom to be expedient.

The number of serviceable small-arms at the armories and arsenals on the 30th June, 1852, was about 629,745; of which there were 193,061 new percussion muskets; 281,509 percussion muskets altered from flint-lock, and 73,992 flint-lock muskets—in all 548,562 muskets; 45,599 new percussion rifles; 4,700 percussion rifles altered from flint-lock, and 3,885 flint-lock rifles—in all 54,184 rifles; 9,435 new percussion pistols; 6,450 percussion pistols altered from flint-lock, and 11,114 flint-lock pistols—in all 26,999 pistols. The opinion expressed in my last annual report, in regard to the number of small-arms that would constitute a proper provision for the nation, is still entertained, and, in support of it, I refer to the views therein expressed.

ARSENALS AND DEPOTS.

There has been no change in the number of arsenals and ordnance depots during the year. The expenditures from the appropriation for arsenals during that time have amounted to \$153,888.80, which have been applied to the objects stated in the estimates on which the appropriation was based. The work done consists of repairs and preservation of buildings and sites, the erection of new and additions to old buildings, and all improvements of a permanent character. The reports of the commanding officers accompanying this give a detailed account of this work and of other principal operations at each, and are referred to for particulars. The annual inventories, which are rendered to include the 30th June of each year, show the aggregate valuation of all property in charge of the Ordnance Department to have been, at the beginning of the present fiscal year, about 19,000,000 of dollars.

I again recommend that such of the arsenals as are not required for military purposes be disposed of. There are several of them of which little or no use can be made as arsenals, and their maintenance is a source of constant expense. The views on this subject expressed in my last report, as also those in regard to the transfer of the arsenals at Old Point Comfort, Virginia, and Mount Vernon, Alabama, to other sites are unchanged. No action in reference to them having been authorized, I respectfully repeat my former suggestions and recommendations touching these points. There appears to be a necessity for extending the present limits of the ground assigned to the arsenal at Greenleaf's Point, in this city. The measure suggested as best calculated to effect this object is to obtain a restoration to the arsenal of the ground which was taken from it as a site for the penitentiary. This measure has heretofore been proposed, and I think might be effected with advantage to the public interest. I refer to the report of Major Mordecai, and to an extract from Lieutenant-Colonel Baker's last inspection report of Washington Arsenal, hereto annexed, for further information in regard to the subject.

During the last session of Congress I made a report in answer to a resolution of the Senate calling for information in relation to the establishment of suitable depots for the preservation of the gunpowder belonging to the United States. That report, dated March 23, 1852, was transmitted to the Senate, but no action was had on the subject. The public service, in my opinion, requires the establishment of such depots; and I understand that the site formerly selected by a board of officers as most suitable for the main depot may be purchased by the government, if it be soon authorized; otherwise, it is likely to be sold, in small parcels, to individuals, which will render its acquirement by the government difficult, if not impossible. I, therefore, beg leave to bring the subject again, through the War Department, to the notice of the legislature, believing that it was favorably received when heretofore before them, and not acted on only from the pressure of other business demanding their attention. My report and the document therein referred to, which are on the Congressional files, contain full information on the subject.

I am, sir, very respectfully, your obedient servant,

H. K. CRAIG,
Colonel of Ordnance.

Hon. C. M. CONRAD,
Secretary of War.

[Extract from Annual Report of Secretary of War of December 4, 1852, in Ex. Doc., 2d session 32d Congress, vol. 1, part 2, p. 7.]

Congress also omitted, the last two sessions, to make the usual appropriations for the purchase of the heavy ordnance used in coast defense. As this description of ordnance is generally intended for fortifications, it has been the practice to estimate for it under the head of "Armament of fortifications." It is hardly necessary to observe, however, that it is an indispensable part of any system of defense that may be adopted, and that the fewer the fortifications, the greater the quantity that will be required.

On this subject, I beg leave to subjoin a few remarks contained in the report on fortifications above referred to:

"Whatever policy may be adopted with reference to fortifications, it will still be necessary to provide a much larger supply of ordnance than we now have on hand. By reference to the report from the head of the Ordnance Bureau, hereto annexed (marked C), it will be seen that the whole number of guns, of all calibers, now on hand, whether in the forts or in the arsenals, amounts only to 3,535, and that of gun-carriages is still smaller. The entire number of guns that can be mounted in the forts already completed (classes A and B) amounts to 4,572 guns; and if the works now in progress of construction should be completed, the total number of guns that would then be required for all the forts would be 6,093. It appears, therefore, that the supply of ordnance now on hand is very inadequate, even to the present wants of the service. I will observe, too, that even if Congress should determine to restrict the system of fortifications, this would not obviate the necessity for a large increase in the supply of heavy ordnance. Some means of defense must be employed, and cannon is an indispensable part of any system that may be adopted.

"It appears, too, from the reports hereto appended, that the great naval powers of Europe have, within a few years past, greatly increased the caliber of the guns mounted on their vessels of war. This renders it obviously necessary that the power of the batteries intended to resist them should also be proportionately increased. I believe it is the opinion of all officers, both of the army and navy, who have devoted much attention to this subject, that many of the guns now in our most important forts ought to be removed, and others of longer range substituted. A glance at the report of the Ordnance Bureau will show how very deficient we are in the heavy descriptions of ordnance, particularly in eight and ten inch columbiads, the most effective weapons against vessels of war.

"To manufacture cannon of good quality is a work that demands considerable time; and as they are imperishable when properly taken care of, there is no good reason why the government should not at once provide the requisite supply.

"In connection with this subject, I would venture to suggest that provision be made for a distribution of artillery among the militia of the States and Territories. Our people are more deficient in the knowledge of this arm than of any other, and yet it is the one that would be most required in a war with any European power. If a standing appropriation were made applicable to the distribution of artillery, and of the book on artillery practice among the States and Territories, it would tend very much to promote the knowledge of this essential branch of the military art among the citizens of the country."

[9 W. D., 1853.]

WAR DEPARTMENT,
January 13, 1853.

The Secretary of War directs that the proceeds of all real estate and of all condemned arms that have been, or may hereafter be, sold by virtue of any order of this department, be deposited in the Treasury, subject only to the disposal of Congress. It is not considered that the latter article comes within the spirit and intent of the third section of the act of September 28, 1850.

JOHN POTTS,
Chief Clerk, War Department.

Copy for the COLONEL OF ORDNANCE.

[Letters to W. D., vol. 10, p. 398.]

Indorsement on the letter of Capt. R. H. K. Whiteley, Saint Louis Arsenal, of 3d of January, 1853, transmitting two requisitions from the sheriff of the county, and reporting having issued the stores called for.

ORDNANCE OFFICE,
January 19, 1853.

Requisitions of a similar character are not unfrequently made on ordnance officers by civil officers of the States, and as there is no established rule to govern in such cases each officer is obliged to exercise his discretion. Some regard the seventieth article of Ordnance Regulations (the only one having any relation to the matter) as prohibiting issues, except in the cases specially mentioned; and others, like Captain Whiteley in this instance, apply it by analogy to cases of riot. I *think* it desirable that there should be some established rule on this point, and respectfully submit this letter and its inclosures to the Secretary of War for his decision in this particular case, or for a general rule in similar ones, should he deem it advisable to establish one.

H. K. CRAIG,
Colonel of Ordnance.

[Indorsement.]

I think the regulations on this subject are explicit enough and should be adhered to. There is no law which authorizes this department to issue arms to the civil authorities of the States in cases like the one referred to. When the President calls the militia of the States into the service of the United States "to execute the laws of the Union, to suppress insurrection or repel invasion," act of 28th July, 1775, the article seventy of the Regulations applies; but in ordinary cases the militia should be supplied with arms and ammunition by the States to which they belong.

C. M. CONRAD,
Secretary of War.

ORDNANCE OFFICE,
Washington, January 28, 1853.

SIR: On the subject of the Senate's resolution of the 25th instant, concerning "the expediency of establishing a permanent arsenal and general depot of arms for the Pacific coast, another for the coast of the Mexican gulf, another for the southern Atlantic, and another for the northern Atlantic and the Lakes," I have to report: On the Pacific coast there is now but one arsenal, situated at Benicia. This site is considered the most advantageous for the principal arsenal on that coast. The buildings which have been erected there are not as large or of as permanent a character as are requisite for a permanent arsenal and general depot of arms. They suffice, however, tolerably well for the storage and preservation of ordnance stores, except gunpowder. There is a pressing necessity for the erection of a permanent magazine there. An estimate for this object was submitted in October last, and should the amount estimated be appropriated the building will be commenced as soon as the funds are available, and will be completed with all possible dispatch. Although the arsenal at this place should be, at a future time, one of the first class, calculated for construction as well as for repairs and deposit, it is not deemed advisable to make it so at once, but only to erect the proper buildings for repairs and deposit, in the first place, from time to time as they are needed, keeping in view, as regards their location and character, the ultimate object of this arsenal.

In connection with the main arsenal the proper military defense of the Pacific coast will require the establishment of *two subordinate* arsenals for deposit and repairs; one in Oregon, and the other in southern California. An eligible site for the former, which is more needed and should be first established, has been selected on the Willamette river, and a sufficient quantity of land reserved for the purpose. The best site for the latter must be the subject of future investigation. It is not considered necessary *now* to ask for farther appropriations for arsenals on this coast, but they will be included in the next and future estimates. On the coast of the Mexican gulf there are two arsenals, neither of which are suitably located for permanent arsenal and general depot of arms for that coast. The one is at Chattahoochie in Florida, and the other at Mount Vernon in Alabama. The use of both as arsenals may be advantageously discontinued, and in lieu of them the permanent arsenal for the Gulf coast should be established in the neighborhood of Mobile or of Pensacola.

The former position is considered more eligible, both from its centrality and from the great advantages for transportation offered by the Mobile and Ohio Railroad, now under construction. In connection with this arsenal there should be established a subordinate one in Texas, where there is now no establishment of the kind but the temporary depot at San Antonio.

There is a diversity of opinion as to the best site for an arsenal in Texas, and it is a point which will require further investigation.

For the southern Atlantic coast I regard Augusta, in Georgia, as a suitable location for the permanent arsenal and general depot of arms. There is now an arsenal at that place, which by enlargement may readily be converted into such an establishment. The arsenal of construction at West Troy, N. Y., known as Watervliet Arsenal, is amply sufficient to furnish ordnance supplies for the northern Atlantic and Lake coasts, in conjunction with the smaller arsenals near the same coasts already established, and no farther provision in this respect is necessary.

The establishment of permanent arsenals for the coasts before-named, which I consider highly expedient, will render still more advisable the course heretofore recommended of abandoning the use of many of the arsenals which are now occupied, but are useless for military purposes. If they are disposed of by sale, the proceeds might be advantageously applied towards the erection of the permanent arsenals on the new sites.

The resolution of the Senate is returned herewith.

A map of the railroads in the United States, with the proposed site of the arsenal for the Gulf coast marked on it, is inclosed.

Respectfully, your obedient servant,

H. K. CRAIG,
Colonel of Ordnance.

Hon. C. M. CONRAD,
Secretary of War.

[88 W, D., 1853.]

ORDNANCE OFFICE,
Washington, March 14, 1853.

SIR: I have the honor to report on the case of Sanders Lansing, jr., as directed by the indorsement on his letter of the 8th instant, referred to this office, that, by General Orders No. 15 of 1851, Mr. Lansing was removed from the office of paymaster and military storekeeper at Watervliet Arsenal, and John M. Comstock, of New York, was appointed to the same office, in his place. Mr. Lansing, at the time of his removal, held the office by appointment of the President, confirmed by the Senate, under the law of 23d August, 1842. Before the passage of that law, he had held the appointment of military storekeeper, without confirmation by the Senate and without a commission, under the 5th section of the act of March 3, 1813, but was subject to the rules and articles of war, in the same manner as commissioned officers, under the 6th section of the act of April 24, 1816. When the law of August 23, 1842, was passed, the military storekeepers then in office, who were retained under that act, were nominated to the Senate; and those who were confirmed received commissions dating back to the time of their original appointments. They have since been considered commissioned officers of the army.

Mr. Lansing was so nominated and confirmed, and received a commission, bearing date 19th July, 1834, which commission he held at the time of his removal from office.

I am not aware of the cause of his removal. None has ever been communicated to this office. I deem it no more than due to Mr. Lansing to say that, while in office, he discharged his public duties intelligently, faithfully, and honestly, and no charge of neglect or malfeasance has, to my knowledge, been brought against him.

The inclosed correspondence, in reference to the removal of Mr. Lansing, is respectfully submitted as the only record of this office relating to the subject.

Mr. Lansing's letter is returned herewith.

Respectfully, your obedient servant,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JEFFERSON DAVIS,
Secretary of War.

[107 W. D., 1853.]

WASHINGTON CITY, D. C.,
March 14, 1853.

DEAR SIR: I have been credibly informed that "space" in the building now in the course of construction for the exhibition of the industry of all nations, to be opened in the city of New York on the first of May next, has been applied for by one department of the executive government, for the display of various articles pertaining to the operations of that department. Could not the percussion-cap machine (invented by me, and now in operation at the Washington Arsenal) also be included in the number? Anything that you may do to accomplish the desired object will be fully appreciated by

Your obedient servant,

GEO. WRIGHT.

Maj. A. MORDECAI,

Commanding United States Arsenal, Washington, D. C.

{Indorsement.}

MARCH 16, 1853.

The within application is respectfully referred for the consideration of the Colonel of Ordnance. Mr. Wright, the inventor of the cap machine, has received no adequate remuneration from the United States for the use of his invention. He thinks that the exhibition of it in New York may be the means of directing the attention of some foreign representatives, &c., to it and thus enable him to derive some benefit from it; he is a working man, depending on his daily employment for the subsistence of himself and his family, and therefore he is unable to bear the expenses of exhibiting the machine himself. These expenses would be chiefly in the transportation of the machine to New York, and in the payment of the wages of a man kept there to attend it during the exhibition; the latter, which would be the principal expense, would amount to about \$50 a month during the exhibition, say 5 months, \$250 in all. The materials used in working the machine might be obtained from Watervliet Arsenal, and would be saved by turning in the caps made.

The government department to which Mr. Wright refers in his letter is the Coast Survey; the Secretary of the Treasury having authorized the exhibition of their work at the government expense, as he (W.) understands.

A. MORDECAI,
Captain of Ordnance, Brevet Major.

[2d indorsement.]

ORDNANCE OFFICE,
March 16, 1853.

Respectfully submitted to the Secretary of War. The exhibition of this machine and perhaps of some other manufactures of this department would be interesting to mechanics and scientific men, and creditable to the skill and ingenuity of the country. I, therefore, request your authority to contribute to the exhibition; confining myself to a few articles, as samples of our progress in the manufacture of implements of war. The *necessary* expenses attending the contribution of this department to the exhibition, which will be but small, may be defrayed from the funds for the current expenses of the ordnance serv-

ice, particularly that portion included in the estimate under the head of incidental expenses.

H. K. CRAIG,
Colonel of Ordnance.

Not approved.

[3d indorsement.]

JEFF'N DAVIS,
Secretary of War.

WAR DEPARTMENT, *April 28, 1853.*

[98 W. D., 1853.]

ORDNANCE OFFICE,
Washington, March 31, 1853.

SIR: Issues of arms and equipments to the States, under the law of 1808 and the regulations adopted for carrying that law into effect, have always been restricted to those arms and equipments of the patterns regularly adopted for the United States troops. Without such a restriction you will readily perceive that there might be no uniformity of arms and equipments among the United States and the State troops; that the ammunition for the one might not suit the other, and that the object of supplying the States, viz, utility and fitness for actual service, would be defeated. At the instance of many of the States, the rule has been so far relaxed as to allow the issue of cadet muskets, as part of a State's quota, to a limited extent, for the purpose of supplying State military schools. The limit for such issues has not been defined, but the greatest number that has been furnished to a State is 500 to the State of Virginia, about two-thirds of its quota for a year. The State of South Carolina was also supplied with 200 cadet muskets, about the same proportion to her whole quota, and several other States have been similarly supplied, to a less extent in proportion to their quotas.

I have just received a letter from the arsenal-keeper at Columbia, S. C., informing me that he is directed by the governor of that State to call for the entire quota for last year (326 muskets) in cadet arms. A compliance with this requisition, it seems to me, would not be in accordance with the purpose for which the rule restricting issues to arms of the patterns regularly adopted for United States troops was relaxed. It would, moreover, establish a precedent by which the exception made for a special purpose might take the place of the regulation.

I, therefore, respectfully suggest that the extent to which issues of cadet arms may be made, be specified, which in my opinion may be best done by limiting it to a certain portion of each State's quota for one year, say two-thirds.

Respectfully, your obedient servant,

H. K. CRAIG,
Colonel of Ordnance.

HON. JEFF'N DAVIS,
Secretary of War.

[Indorsement.]

Approved for one year *only.*

JEFF'N DAVIS,
Secretary of War.

WAR DEPARTMENT, *April 22, 1853.*

[Letters to W. D., vol. 10, p. 434.]

ORDNANCE OFFICE,
Washington, May 11, 1853.

SIR: In the act making appropriations for the support of the Army, approved March 3, 1853, there is a clause authorizing the Secretary of War "to abolish such of the arsenals of the United States as in his judgment may be useless or unnecessary."

There are five arsenals of the United States which are now both useless and unnecessary for government purposes. Indeed they are worse, because they require a constant expenditure to keep them up, without any adequate return. These arsenals are at Rome, N. Y.; Bellona, Virginia; Apalachicola, Fla.; Memphis, Tenn.; and Liberty, Mo. I respectfully recommend that they be abolished, and submit the following plan for abolishing and disposing of them:

Let the ordnance stores, now in deposit at these arsenals, be carefully inspected, and those which are worth the cost of transportation be sent to the nearest arsenals; the rest sold in accordance with the 1st section of the act of 3d March, 1825, concerning the sale of unserviceable military stores. Then let the lands and buildings thereon be sold, under authority of the 1st section of the act of 28th April, 1828, as follows, viz: advertise for proposals to purchase for a given time, say three months, payment to be made in cash, on delivery of title and possession; or, if it be deemed more advisable, the sale to be on time, or part cash and part credit; each bidder to send with his bid evidence of his ability to pay the amount of his bid if accepted; the highest bidder in each case to become the purchaser.

Respectfully, your obedient servant,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JEFF'N DAVIS,
Secretary of War.

[Letters to W. D., vol. 10, p. 439.]

ORDNANCE OFFICE,
Washington, May 31, 1853.

SIR: The inspector of armories and arsenals, in his reports of the inspections recently made, represents and urges the propriety of an increase of the number of enlisted ordnance men. The existing law on this subject, 11th section of the act of 18th June, 1846, authorizes the Colonel of Ordnance to enlist, for the service of that department, as many men as the public service, in his judgment, under the directions of the Secretary of War, may require. The greatest number which has been in service at one time, under this law, was about 580 during the Mexican war, of which about 150 were with the armies in the field. At the close of that war, the number was reduced to about 500, and so continued until March, 1851; when, at the suggestion of the Colonel of Ordnance, it was reduced and limited to 250. At the time this suggestion was made, the wages of hired men were much lower than now, and the deficiencies in the number of enlisted men could be supplied, by hiring, without a great increase of expense; at that time, moreover, the subject of army expenditures was being agitated, and there was much remark on what was called the extravagance of that branch of the public service. Both these motives may be supposed to have had their influ-

ence on the suggestion of the Colonel of Ordnance as to the reduction of the number of enlisted men. But, whatever may have induced the maximum of 250 then proposed, subsequent experience has proved that it is below the number which the public service requires. That maximum is stated in the order for reduction (No. 18 of 1851) to be based upon the provision made by the act of April 5, 1832; but, since that act, all the arsenals and ordnance depots on the Pacific coast, in Texas, and in New Mexico, have been added to the establishments of this kind then existing, and these arsenals and depots require, more than any others, the services of *enlisted* men. The least number of enlisted men of ordnance, which the public service, in my judgment, now requires is 350, an addition of 100 to the number authorized by General Orders No. 18 of 1851. I respectfully recommend that number to be authorized by your direction, as provided by the 11th section of the act of 18th June, 1846. I may add that, in addition to the greater efficiency of the service to be attained by the proposed increase, it also commends itself as a measure of economy, for the very small enlisted force which the present number permits at each arsenal compels the frequent recourse to the aid of hired men at high rates of wages.

Respectfully, your obedient servant,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JEFF'N DAVIS,
Secretary of War.

[142 A, 1853.]

WASHINGTON, June 2, 1853.

SIR: The managers of the great exhibition, which is to take place at New York, are desirous of having a show of the arms and ordnance of the United States, and have requested me to ask the favor of such as will best show the perfection of the articles, and be considered interesting in a national point of view.

The following will embrace such as I have thought would be most desirable: 2 12-pounder bronze guns; 2 6-pounder bronze guns; 2 32-pounder bronze howitzers; 2 12-pounder bronze howitzers; 1 6-pounder carriage, complete; 1 mountain-howitzer carriage, complete; 1 caisson; 1 battery wagon; 1 traveling forge; 1 set harness; all implements for the guns and carriages; 1 case of 10 muskets; 1 case of 10 rifles; 1 case of 10 musketoons; 1 case of 10 West Point muskets; 1 case of 10 holster pistols; all appendages with small-arms.

A collection of muskets of different dates would be desirable, if they can be readily obtained, to illustrate the progress in that department.

There may be other articles not enumerated, which will add materially to the interest of the whole, which I would be glad to have the liberty to add, if permission is given.

I will be responsible for the safety and return of the above without charge to the government, if they can be forwarded during the exhibition, which will be 4 to 5 months.

I shall exhibit swords of the various models, on my own account. As other nations are expected to exhibit arms, the managers are very desirous to put the arms of our government in competition, which we think will not suffer by the comparison.

I expect to be here during this week, and shall be very glad if a decision can be had during that time.

Very respectfully, your obedient servant,

JAS. T. AMES.

Col. H. K. CRAIG.

[1st indorsement.]

ORDNANCE OFFICE,
June 3, 1853.

Understanding that the non-approval by the Secretary of War of the proposition on the same subject, made by Major Mordecai and recommended from this office, had reference to the expense, I submit and recommend for approval this proposition of Mr. Ames. Mr. Ames now has, and has had business with this department for a long time, and is known to be a responsible man. It will not injure the arms or cause any inconvenience to furnish them for the exhibition, nor will it involve any expense to the government.

H. K. CRAIG,
Colonel of Ordnance.

[2d indorsement.]

Approved :

JEFF'N DAVIS,
Secretary of War.

WAR DEPARTMENT,
June 7, 1853.

[144 W. D., 1853.]

WAR DEPARTMENT,
June 10, 1853.

The order of the War Department, dated January 29, 1851, prohibiting the Quartermaster-General, the Commissary-General, and the Colonel of Ordnance from making or authorizing "any contract for supplies, or for arms and munitions of war, to be furnished, or for services to be performed, to an amount exceeding \$2,000, without previously submitting such contracts or propositions to the Secretary of War," is hereby rescinded.

JEFF'N DAVIS,
Secretary of War.

[174 W. D., 1853.]

WATERVLIET ARSENAL,
June 27, 1853.

SIR: I have the honor to forward herewith a letter from Brevet Major Laidley, assistant commissary of subsistence at this post, defending his right to receive the allowance allowed by law to assistant commissaries of subsistence, in opposition to a recent decision of the Comptroller of the Treasury.

I am, very respectfully, your obedient servant,

JOHN SYMINGTON,
Major of Ordnance.

Colonel H. K. CRAIG,
Ordnance Officer.

[Indorsement.]

ORDNANCE OFFICE,
June 29, 1853.

Respectfully submitted to the Secretary of War. I am of opinion that lieutenants of ordnance are "subalterns of the line," within the meaning of the sixth section of the act of April 14, 1818, and the eighth section of the act of March 2, 1821.

H. K. CRAIG,
Colonel of Ordnance.

[Inclosure.]

WATERVLIET ARSENAL, N. Y.,
June 25, 1853.

SIR: I beg leave, respectfully, to call your attention to a late decision of the Treasury officers, which operates in a manner prejudicial to my interests and my rights, and which cannot be sustained, a due regard being paid to long established precedents and the acts of Congress on the subject.

On the 16th of May, 1845, the President regularly appointed me an assistant commissary of subsistence. I gave bonds to the amount of fifteen thousand dollars* as required, and since that time have, at different times, performed the duties of said office and received the additional compensation allowed by law, until September last, when the Second Auditor disallowed my account, saying the Comptroller had decided that I was not entitled to said compensation and that I must *refund*.

The decision of the Comptroller, dated September 10, 1852, does not refer to assistant commissaries of subsistence regularly appointed by the President, as I have been, and have given bonds. That question was not raised, nor was his opinion asked on that subject.

The inquiry was "whether *acting* assistant commissaries of subsistence" were entitled to \$20 per month, and his opinion refers to them. I do not see, then, why the Second Auditor should regard the matter adversely decided, when it only refers to *acting* appointments, which the Comptroller says "are of *totally* a different character." If, however, it is to be decided that assistant commissaries of subsistence cannot *lawfully* be appointed from the ordnance, that the late President Polk and Secretary Marcy acted without law when they gave me my appointment as assistant commissary of subsistence, and other Presidents and Secretaries did likewise when they conferred similar appointments on other ordnance officers, I say such decision can only be founded on a partial knowledge of the acts of Congress and the interpretation put on them at the time of their passage by those who had the best means of knowing their true import, as, I think, I can clearly show.

The act of Congress, approved April 14, 1818, entitled "An act regulating the staff of the army" (he it remarked this act says nothing of the ordnance as a part of the staff), section 6, gives the President power to appoint "as many assistant commissaries, to be taken from the subalterns of the line, as the service may require." The act "to reduce and fix the military peace establishment of the United States," of March 2, 1821, reduces the number to fifty, and also requires that they shall be taken from the subalterns of the line.

It is then to be determined what was meant by the term "*the line*," what was understood by it at the passage of these acts.

This is most readily gathered from the acts of Congress themselves, and from the interpretation put on them by the Army and the law officers of the Treasury of that time.

The act "to augment the army," July 16, 1798, says: "There shall be appointed an inspector of artillery, taken from the line of artillerists and engineers, who shall be allowed \$30 per month, in addition to his pay *in the line*."

Here we have an act of Congress declaring the engineers to be a part of *the line*, and if the engineers, then, of course, the ordnance, too.

The act of 1821, before alluded to, says that the army shall be composed "of four regiments of artillery, seven regiments of infantry, with such officers of engineers, of ordnance, and of *the staff* as are hereinafter provided for."

The engineers and ordnance are *not* a part of the staff, according to this very act that regulates the assistant commissaries of subsistence.

But if they do not form a part of the staff then they must, of necessity, belong *to the*

* Bond dated May 29, 1845, for \$5,000.

line, for these embrace all the officers of the army. (See act of Congress approved July 5, 1838.) Section 15 was framed to give every officer of the army an additional ration. It speaks of them as being all comprehended under the heads of staff or line. It reads: "Every commissioned officer of *the line or staff*, exclusive," &c.

Since all officers must belong either to the line or the staff, and ordnance officers do not belong to the staff, as we have before seen, they must then belong to *the line*, under the meaning of the act of Congress.

But, let me inquire, how did the army understand this term, at the time of the passage of this act? The act of Congress of January 11, 1812, says that the aids-de-camp are to be taken from the "officers of *the line*," and "from the captains or subalterns of *the line*."

Did the general officers think it necessary, in order to comply with the requirements of this law, to choose their aids-de-camp from the infantry and artillery? By no means. Under this law Major-General Pinckney chose Maj. J. G. Swift, of the *engineers*, for one of his aids-de-camp. General Hampton selected Capt. S. Thayer, of *ordnance*, for his aid-de-camp, 1813 to 1814, when Captain Thayer was made brigade major to General Porter, which office was also to be filled from "*the line of the army*." (See same act, same section.)

Lieutenant Lewis, of *engineers*, was aid-de-camp to General Lewis in 1813; Second Lieut. George Blantly, of *engineers*, was aid-de-camp to General Swift, 1817 and 1818.

First Lieut. R. L. Baker, of *ordnance*, was aid-de-camp to General Ripley in 1816 and 1817, till he was promoted to a captaincy; and also Andrew J. Donelson, second lieutenant of *engineers*, was aid-de-camp to Maj. Genl. Andrew Jackson in 1820 and 1821, till he resigned. These are not all, but are enough to show that officers of the ordnance and engineers were selected as aids-de-camp the same as officers of artillery or infantry, though the law in every case is positive "that they shall be chosen *from the line of the army*." It will be remembered that the Army Register of those dates had a compendium of all the laws regulating the army attached, and this law among them, that "the aids-de-camp were to be chosen from the line of the army," so they could not have been ignorant of the requirements of the law in this case. We see, then, that the army universally regarded the ordnance and engineers as a part of *the line* of the army within the meaning of the act of Congress. We see General Pinckney, General Hampton, General Ripley, General Lewis, General Swift, and General Jackson, men who had a right to know the meaning of term "*of the line*," rather better than civilians of the present time, declaring by their acts that the ordnance and engineers are a part of *the line of the army*, within the meaning of the acts of Congress.

These officers received the additional compensation allowed by law (I have the statement from one who drew it), and the law officers of the Treasury never thought of disputing the accounts.

We, then, have the *acts of Congress*, the opinions of officers of high rank and ability, and the consent of the officers of the Treasury who were first called on to construe the meaning of the law after its passage; all agree that officers of the ordnance are officers of the line. Nor has there been found one to dissent till, after the lapse of *forty years*, we hear, for the first time, that ordnance officers were not embraced "*in the line*." What may commonly be understood by that term, at the present time, is not at all to the point. For a correct construction of the law we only want to know what the framers of the law meant by it when they made use of it; what was the common meaning of the expression at the time of the passage of the act. That we have found to be that the ordnance *was* regarded as embraced in the line.

As well might it be decided that the artillery was not a part of the line, because the dictionary gives the definition of this term to be "a portion of the infantry, in *opposition* to the artillery, cavalry, &c.," and so it is in *other services*. It cannot, be pretended, however, that the term has this significance in the acts of Congress. It was used in opposition to the *staff*, of which the ordnance is not a part.

I have been regularly appointed by the proper authority an assistant commissary of subsistence; I have given bonds; I am performing the duties; I disburse some fifteen thousand dollars per annum.

These duties are performed in addition to my other duties as an officer of ordnance. They require a good portion of my time, and involve a good deal of responsibility. Is it right, is it just, then, to deny me the compensation allowed by law to assistant commissaries of subsistence?

Very respectfully, I am, colonel, your obedient servant,

T. T. S. LAIDLEY,

Brevet Major, First Lieutenant of Ordnance, Assistant Commissary Subsistence.

Col. H. K. CRAIG,

Ordnance Department, Washington, D. C.

Statement of the expenditures at each of the national armories, and of the cost of each arm with its appendages made thereat, for the twelve and a half years of civil superintendence immediately preceding the transfer to a military superintendent in 1841, compared with the expenditures and cost of each arm and its appendages, for the twelve and a half years since, and a like comparison of the two armories combined.

Armories.	Superintendence.	Expenditures.				Total.	Total arms made and turned into store, exclusive of model arms.	Cost of pattern and experimental arms—parts sent away for repairing arms at other places and proceeds of sale of parts condemned.	Cost of each arm with appendages, calculated on the total expenditure.	Cost of same, deducting for patterns, parts, &c.	Cost of same, deducting for lands, buildings, &c.
		For lands, buildings, and new machinery.	For manufacture of arms, including tools, repairs of machines, patterns, &c., and salaries and all other incidental expenses.	Total.							
Springfield.....	Civil superintendence	\$188,521 89	\$2,123,402 14	\$2,311,924 03		165,967	\$23,345 94	\$13 93	\$13 78.9	\$12 65.3	
Do	Military superintendence	486,865 44	1,353,800 05	2,422,665 49		183,700	48,112 12	13 18.8	12 92.6	10 27.59	
Harper's Ferry	Civil superintendence	374,046 46	2,168,953 52	2,542,999 98		143,189	54,383 50	17 76	17 38	14 76.8	
Do.....	Military superintendence	614,498 31	1,937,641 29	2,552,139 60		129,454	108,099 98	19 71.46	18 87.95	14 13.25	
Both armories combined	Civil superintendence	562,568 35	4,292,355 66	4,854,924 01		309,156	77,729 44	15 70.4	15 45.25	13 63.28	
Do.....	Military superintendence	1,101,363 75	3,873,441 34	4,974,805 09		313,154	156,212 10	15 88.6	15 38.71	11 87.5	

[Letters to Ordnance Officers, vol. 14, p. 65.]

ORDNANCE OFFICE,
Washington, August 3, 1853.

SIR: Your letter of 2d July with a copy of my reply to the same, and your letter of 10th July appealing to the Secretary of War, from my decision on your application for the command of Saint Louis Arsenal, were referred to the Secretary of War, indorsed as follows:

ORDNANCE OFFICE, July 18, 1853.

As requested by Major Bell, these letters are respectfully laid before the Secretary of War; but without admitting the right of the major to appeal from a decision made in accordance with the 3d paragraph of Ordnance Regulations, or his right to classify the ordnance stations, or the correctness of the opinion expressed by him on that subject.

H. K. CRAIG,
Colonel of Ordnance.

And having been considered by the Secretary the papers have now been returned with this additional indorsment:

The Regulations make it the duty of the head of the Ordnance Department to assign officers to commands of ordnance stations; they also deny to officers the right of choice to commands. I therefore decline to interfere with the decision of Colonel Craig in this case.

JEFF'N DAVIS,
Secretary of War.

WAR DEPARTMENT, August 2, 1853.

Respectfully, your obedient servant,

Major WM. H. BELL,
Allegheny Arsenal.

H. K. CRAIG,
Colonel of Ordnance.

[170 A, 1853.]

ADJUTANT-GENERAL'S OFFICE,
Washington, September 26, 1853.

SIR: Major Bell's communication of the 15th instant reporting that three enlisted men of his command have married without permission, has been submitted to the Secretary of War, and I am now instructed to inform you that the Secretary does not perceive in that letter sufficient reason for directing the discharge of these men. The Regulations of the army do not prohibit soldiers from marrying without the consent of their commanding officers, nor would an order of prohibition by the commanding officer be regarded as a military order.

The inconvenience which is anticipated to result from the marriage, in the cases under consideration, is believed to be within the control of the commanding officer, by exacting from these soldiers the observance of the same rules as before marriage, and by bringing them to trial for any violation.

Soldiers who marry without the consent of their commanding officers, will of course not be allowed to bring their wives into garrison, nor will they be allowed to absent themselves from garrison oftener than it is usual to grant a like permission to unmarried men.

Very respectfully, your obedient servant,

S. COOPER,
Adjutant-General.

Col. H. K. CRAIG,
Chief of Ordnance, U. S. Army, Washington, D. C.

[234 W. D., 1853.]

WAR DEPARTMENT,
Washington, October 11, 1853.

SIR: I have under consideration the case of Adam Rhulman, late inspector and foreman at Harper's Ferry Armory, and from the papers submitted it appears to me that a very singular course has been pursued in regard to the inspectors at that armory.

The officer in charge of the armory on the 29th of September 1849, requested authority to discharge the inspectors, and substitute foremen, alleging that they looked upon their appointments as for life, that they had many of them grown old in their positions, and that he considered it "very desirable to have in their stead younger men, more efficient and active in their habits, to secure an accountability, and regularity which it seems impossible to procure with those whose prejudices and habits are altogether of another character."

It is obvious that these objections were personal to the individuals spoken of, and therefore, though constituting good ground for their removal from office, involved no necessity for abolishing the office itself; nevertheless the department gave the authority requested, whereupon the superintendent of the armory instead of availing himself of it for the purpose for which it was given, continued to employ a majority of the old inspectors in the same duties, only changing their titles and lowering their wages.

It is possible there may have been good reasons for this course, but the papers before me show none; on the contrary, the facts there disclosed would almost suggest the belief that the object was not as declared, to get rid of incompetent officers, but to cause them to perform their duties at reduced wages, and under different titles; in other words, simply to avoid the operation of the act of 1842, which recognizes the office and fixes the compensation of the inspectors.

Please inform me why Rhulman was discharged. What was done in regard to the other inspectors similarly situated, and who now fill their places?

Very respectfully, your obedient servant,

JEFF'N DAVIS,
Secretary of War.

Col. H. K. CRAIG,
Chief of Ordnance.

[Letters to W. D., vol. 10, p. 466.]

ORDNANCE OFFICE,
Washington, October 17, 1853.

SIR: I duly received your letter of 11th instant in relation to the claim of Adam Rhulman, in which you called upon me to state "why Rhulman was discharged, what was done with the other inspectors similarly situated, and who now fill their places."

As the names of the employés at the national armories are not given in the monthly reports, but simply the number of each grade; as the word inspectors has not been used since the decision of October, 1849, but the word foremen inserted on the returns in its place; and as all have hitherto been employed by and assigned to such places or duties as the superintendents or commanding officers thought them best qualified to fill, without referring to this office, I had not the data to answer

^the call without a communication from Colonel Huger, the present commanding officer. His letter to me of the 14th instant, with its accompanying papers, is herewith inclosed.

The cause of Rhulman's discharge in May last, or rather of his not being re-employed in July (for only three of the whole number, Young, Cloue, and Laley were employed in June) appeared to have grown out of the correspondence between Colonel Huger and him, dated 23rd, 24th, and 25th of May. All the inspectors or foremen who were employed with Rhulman in May, it appears by these papers, are now, and have been since July, again employed, except Rhulman and Shaeffer, whose places do not appear to have been filled. The cause of Shaeffer's non-employment does not appear, and it being a matter so entirely within the jurisdiction of the commanding officer, I have not inquired.

I am, sir, with great respect, your obedient servant,
H. K. CRAIG,
Colonel of Ordnance.

HON. JEFFERSON DAVIS,
Secretary of War.

WAR DEPARTMENT,
Washington, April 22, 1854.

SIR: I have fully considered your claim for difference of pay between that of foreman and that of inspector at Harper's Ferry Armory, from December, 1849, and May, 1853, and for certain allowances during the same period.

It appears that in October, 1849, the department determined to discontinue the employment of inspectors and to distribute their duties among the foremen of the shops. You were accordingly discharged from the position of inspector on the 30th of November, 1849, and engaged as foreman on the 1st of December. You rest your claim upon the ground that you continued after the change to perform substantially the same duties, and that the law allows for such duties the rate of pay now demanded.

It was undoubtedly competent for the department to discontinue the employment of inspectors, even if the office had been created by law; the department was not bound to fill it if the services of such an officer was not required. It was also competent for the department to assign to the foremen any duties connected with the proper work of the armory which they were competent and might contract to perform. I do not perceive, therefore, that you can claim anything beyond your stipulated pay for the services which, in consideration of it, you contracted to perform. I may add, though the point is not important, that I do not see how your case can be distinguished from those of all the other foremen among whom the inspection duties were distributed. Your having previously held the office of inspector can give you no advantage over them, and it certainly cannot be contended that they are all inspectors and entitled to pay as such.

Very respectfully, your obedient servant,
JEFF'N DAVIS,
Secretary of War.

ADAM RHULMAN, Esq.,
Washington City.

[Ex. Doc., First session Thirty-third Congress, vol. 1, part 3, p. 263.]

ORDNANCE OFFICE,
Washington, November 11, 1853.

SIR: I have the honor to submit the following report of the principal operations of the Ordnance Department during the fiscal year ending 30th June, 1853.

The arrangement of the subjects is the same as that usually followed in the annual document, having under each head explanatory remarks and such suggestions for the future management of the department as seem likely to add to its efficiency and conduce to the public interest.

FUNDS.

Amount undrawn from the Treasury on the 1st July, 1852	\$576,892 06
In hands of disbursing officers same date.....	97,019 54
Amount of appropriations for the fiscal year 1853, including the fixed annual appropriation for arming and equipping the militia.....	803,815 00
Received for damages to arms in hands of troops, and chargeable to them, and from all other sources not before mentioned	101,110 10
	1,578,836 70
Amount of expenditures during the year	\$1,007,587 09
Amount carried, at the Treasury, to the surplus fund	53,094 10
Remaining in hands of disbursing officers	255,078 25
Remaining undrawn from the Treasury	263,077 26
	1,578,836 70

The amounts expended from each appropriation are stated under their respective heads.

The disbursing officers of the department have all rendered their accounts, as prescribed in the ordnance regulations, and these accounts have been transmitted to the auditing officers, after careful examination in this office, and it affords me pleasure to say that no loss has been incurred by the government.

The estimates for the next fiscal year have been carefully made, and contain nothing but what is thought necessary for the public interest. Your particular attention is asked for the arsenals proposed for Texas, New Mexico, California, and Oregon. Large amounts of stores are being collected at the temporary ordnance depots in the States and Territories, where they are, from want of proper shelter and the means of repair, exposed to deterioration and to entire loss. The distance of these depots from the Atlantic arsenals and magazines might make such loss a great national misfortune.

ARMAMENT OF FORTIFICATIONS.

Under this appropriation a number of guns of heavy caliber have been heretofore procured, and the number would have been much greater; but as it is contemplated to change the proportion of the various calibers in our coast fortifications, it was deemed advisable to defer the procurement of these guns for the time. The difficulty of procuring suitable timber for the carriages of heavy guns, and the time required for seasoning, renders the delay in procuring the guns less important.

Contracts that were entered into for timber for 500 carriages for guns of the largest caliber have not been compiled with, and it is apprehended that other means will have to be resorted to before the necessary supply can be obtained.

There has been expended under this appropriation during the year \$20,968.96, and the principal results are the construction of 5 32-pounder barbette carriages and their chasses; 30 24-pounder barbette carriages and their chasses; 6 32-pounder casemate carriages and one chassis; 13 24-pounder flank defense howitzer carriages, complete; 1 8-inch columbiad carriage and chassis; 25 garrison and casemate gins.

ORDNANCE, ORDNANCE STORES, AND SUPPLIES.

The operations under this head are principally in the purchase, fabrication, and supply of artillery for field, siege, and mountain batteries, with their carriages, forges, caissons, wagons, implements, harness, and ammunition; pistols, swords, and accouterments of all kinds.

The expenditures under this head during the year have amounted to \$171,162.67, and the result has been chiefly the procurement of 7 12-pounder and 28 6-pounder bronze guns; 7 32-pounder and 6 12-pounder bronze howitzers; 30 12-pounder howitzers, mountain; 15 24-pounder and 10 12-pounder siege guns; 8 8-inch siege howitzers; 2 32-pounder guns, and 1 42-pounder casemate carriage, (experimental); 3 12-pounder mountain howitzer carriages; 20 24-pounder and 10 18-pounder siege carriages; 151 Sharp's carbines; 1 Colt's pistol; 129 cannon balls of different calibers; 150 shells of different calibers; 541 spherical case-shot of different calibers; 960 infantry cartridge-boxes; 4,550 infantry cartridge-box belts; 5,579 infantry waist-belts; 5,228 bayonet-scabbards, with frogs; 1,000 rifle waist-belts; 1,865 cavalry saber-belts; 720 artillery saber-belts; 9,315 cap-pouches; 1,896 sword-knots; 500 carbine slings and swivels; 350 carbine cartridge-boxes; 461 sword shoulder-belts; 4,287 waist-belt plates; 403,644 pounds of pig-lead; 1,781 rounds of ammunition for field service; 35,850 cartridges for small-arms; 3,362 cartridges for siege and garrison guns; 75,000 percussion-caps; 376,620 Maynard's primers.

Statement C, hereto annexed, exhibits the quantities and kinds of arms, ammunition, and other ordnance stores issued to the United States troops during the year.

NATIONAL ARMORIES.

The expenditures at the national armories during the year have been as follows:

	Harper's Ferry.	Springfield.	Total.
For the manufacture of arms, appendages, tools, &c., and purchase of materials for the same, including salaries and incidental expenses.....	\$133,248 83	\$168,256 03	\$301,504 86
For repairs, improvements, and new machinery, including lands, buildings, dams, &c.....	47,979 19	28,125 94	76,105 13
Total.....	181,228 02	196,381 97	377,609 99

There were fabricated at Harper's Ferry Armory, during the year, 10,101 percussion muskets, and 2,762 percussion steel-barrel rifles, with 43,859 appendages, and 25,794 extra cones for the same; besides 49,830 cones, hammers, &c., for flint-lock arms to be altered to percussion. At Springfield Armory, 14,500 percussion muskets, 2,000 cadet muskets, and 500 musketoons, with 90,175 appendages, and 154,850 extra cones. The cost of the cadet muskets is charged to the appropriation for arm-

ing the militia, as they were made to meet calls from the States for arms of that description.

The fabrication of machinery and amount of building operations and other permanent improvements which have been carried on during the year at these armories will be found stated in detail in the reports of their commanding officers, hereto annexed. The additions to buildings and machines have not been as great as in some former years. At Harper's Ferry the necessity for improvements was greatest, and the work there has latterly been urged forward with great dispatch. At Springfield the cause for renovation did not claim such immediate action; therefore, many desirable improvements, for which the means have been appropriated, have been very properly postponed till the plans can be well considered in all their possible prospects and relations, and the means for the accomplishment of such plans shall be sufficient, and render unnecessary the sacrifice of any part.

The contemplated improvements which have been delayed are principally in the erection of new shops to replace those now in use, which, having been erected generally long before the practice of applying machinery to the manufacture of small-arms had become so universal, are consequently neither in their separate plans nor relative localities calculated to afford those advantages which, as a part of our important system of manufacture of small-arms, is required of them.

If employed to their reasonable capacity, the two armories can produce 35,000 or 40,000 muskets and 6,000 to 8,000 rifles annually. It is not deemed advisable, with the very considerable supply in our arsenals, to manufacture so extensively, as it would in the course of a few years make it necessary to suspend entirely the manufacture, shut up the shops, and discharge a large class of citizens from our employment, which yields a living to them and their families. It has been thought more advisable, after bringing our armories to a degree of perfection not exceeded (and hardly equalled) by any other establishments of the kind in the world, and giving them a capacity to meet almost any emergency, to gradually diminish their products until they reach a prudent minimum. With this end in view, this department reduced the estimates for the years ending June 30, 1853, 1854, and 1855, for fabrication at the armories, from \$360,000 to \$250,000. This amount is sufficient to give beneficial motion to the machinery and constant employment to as many workmen as may be wanted, without making unnecessary discharges, and at the same time make a proper increase to our stock of arms in depot.

ARMING AND EQUIPPING THE MILITIA.

Agreeably to the act of 1808, arms have been apportioned, in accordance with the return last received, to all the States and Territories except to the State of Iowa, to which, agreeably to act of Congress of March 3, 1853, arms were apportioned according to her representation in Congress.

If this mode of apportionment, or one founded upon the census, were adopted with regard to all the States and Territories, it would obviate many difficulties in the way of prompt apportionment to each of its proper quota.

The expenditures during the past year from this appropriation amount to \$191,233.40, and the principal articles obtained on this account by purchase and fabrication, in addition to the cadet muskets made at Springfield Armory, have been as follows: 4 6-pounder bronze guns; 1

6-pounder carriage; 1 prairie carriage; 4 caissons; 6,300 percussion rifles; 1,500 carbines; 2,998 pistols; 910 cavalry sabers; 3,132 infantry cartridge-boxes; 700 cartridge-box belts; 1,803 bayonet scabbards, with frogs; 3,500 infantry waist-belts; 200 gun-slings; 1,210 saber-belts; 1,350 pairs of holsters; 1,741 sword-knots; 780 pistol cartridge-boxes; 700 carbine cartridge-boxes; 400 carbine swivels; 200 sword shoulder-belts; 336 artillery sword-belts.

The apportionment of arms and supplies furnished to the militia during the year is shown by the annexed statements, marked A and B

ARSENALS AND DEPOTS.

The expenditures under this head are for building and keeping in repair storehouses, workshops, quarters, magazines, walls, fences, wharves, and all other permanent improvements at these places; and the expenditures for the same during the year have been \$90,647.09.

The whole number of arsenals and depots is twenty-six. Four of these, viz, Watervliet, N. Y., Alleghany, Pa., Washington, D. C., and Fort Monroe Arsenal, Va., are arsenals of construction as well as deposit, where are fabricated all ordnance supplies, except small-arms; and at one of the others fabrications and repairs have been carried on. At all the other arsenals, military stores pertaining to the department are kept in deposit. There are four depots where stores are deposited and slight repairs made, viz, one at Liberty, Missouri, one at San Antonio, Texas, one at Fort Union, New Mexico, and one in Oregon. At the first of these only are there any buildings of a permanent character. The three others are much the most valuable as to location, and the means are included in my annual estimate for the year ending June 30, 1855, for the erection of permanent buildings. The necessity of having these arsenals and depots in numerous places, and capable of affording facilities for easy distribution of supplies, is apparent.

Notwithstanding the wear and tear of buildings and machinery, and the issue of stores to the fortifications, to the troops, and to the States and Territories for arming the militia, there is almost always a small annual increase remaining.

The following table exhibits the money values remaining at armories, arsenals, and depots, as shown by the annual inventories, on the 30th June last, and 30th June, 1852, and the increase for the year:

	Lands, buildings, and other permanent improvements and fixed machinery.	Artillery and small-arms of every description, including gun-carriages, implements, accoutrements, projectiles, and ammunition.	Unwrought materials, tools, and parts of arms, carriages, implements, &c., including those in use in the workshops.	Total.
June 30, 1853.....	\$4, 968, 428 06	\$13, 618, 062 00	\$1, 510, 739 54	\$20, 097, 229 60
June 30, 1852.....	4, 740, 264 64	13, 293, 028 77	1, 452, 667 24	19, 485, 960 65
Increase.....	228, 163 42	325, 033 23	58, 072 30	611, 268 95

The Quartermaster-General has expressed the opinion that traveling forges for the Army and wagons for the transportation of ordnance stores, hitherto provided by his department, and embraced in his annual estimates, should be furnished by the Ordnance Department; and

I recommend that the regulations be so altered as to make it the duty of the Ordnance Department to provide these articles. This will enable us to use, advantageously for the public interest, labor and machinery sometimes out of employment, and to apply materials which are sometimes useless for the objects for which they were ordered.

For a more detailed account of the condition of and operations at the arsenals, reference is made to the reports from the inspector of arsenals and armories, and from the commanding officers of the principal of these establishments, hereto appended.

I am, sir, very respectfully, your obedient servant,

H. K. CRAIG,
Colonel of Ordnance.

HON. JEFFERSON DAVIS,
Secretary of War.

[Extract from Annual Report of Secretary of War of December 1, 1853, in Ex. Doc., 1st ses. 33d Cong'. vol. 1, part 2, p. 14-32.]

The act of 1808, for "arming and equipping the whole body of the militia of the United States," makes an appropriation for supplying the several States and Territories annually with such arms and equipments as are used by the United States troops—the quota due to each being determined by apportioning the whole amount according to the returns of the militia made to the Adjutant-General of the Army. These returns are furnished irregularly by some of the States and by others not at all; and it results from this irregularity that the actual supplies of arms and equipments furnished to the States and Territories under the law of 1808 are not distributed, as prescribed by that law, "in proportion to the number of the effective militia in each;" nor is it probable that the regularity and uniformity in these returns requisite to apportion these supplies as the law requires can be obtained. The only remedy for this seems to be to adopt the mode of apportioning the arms and equipments to the several States and Territories authorized in the case of the State of Iowa, by the act of March 3, 1853, which was according to representation in Congress.

* * * * *

By the third section of the law approved March 3, 1853, it is enacted, "that the Secretary of War be directed to report to Congress whether, in his opinion, it would not be more economical, proper, and advisable to cause all the arms of the United States to be made by contract." In complying with this requirement, I shall exclude all political considerations involved in the question of manufactures by the general government, and, as I suppose was intended, confine the expression of opinion to the relations the subject bears to the military service, and to the relative merit of the existing system and that of contracting for the manufacture of all arms. Viewing the armories as a part of the military preparations for the common defense, it is deemed essential that they should be under the control of the War Department, and advantageous, if not necessary, that such establishments should exist under the charge of competent and experienced officers of the army, to the end that a uniformity may be obtained, and all the improvements and efficiency secured, which professional zeal and skill would seek and produce. To this, the existing state of the case, as a standard, I have referred the proposition to make all arms by contract, and have reached the following conclusions:

1. As to the economy of the measure. Under a proper administration of a national armory, it is believed that arms can be obtained cheaper by government manufacture than by contract. Labor and all materials may be obtained upon as good if not better terms by the public than by private armories, because of the greater promptness and security of payment. The permanence of employment must constitute an inducement to workmen to enter the national workshops. But suppose these things to be equal—and the disadvantage cannot certainly be on the side of the government—it follows that the original cost would not be greater in the public than in the private armory. To this, in the case of the government manufacture, there is nothing to add; but in the case of the private contractor there must be a profit on the manufacture, not only sufficient to cover the interest on the investment, but also the hazard which will attend a contract necessarily made for a short period. Experience has established several facts which seem to my mind conclusive as to the economy of the present mode of manufacturing small-arms. Since the year 1840 the cost of making *muskets* has been so much reduced as to exclude competition, and no contracts for them have since that year been made. The price paid for those then contracted for was as high as \$16.25 for some, and not less than \$14.50 for the residue. At the national armories the prices averaged about \$10 for muskets. Since 1840 the contract price for rifles, based on the cost at the national armories, has been reduced from \$14.50 to \$11.62½ each, which exceeds the cost of that arm at Harper's Ferry Armory during the last fiscal year by \$1.60.

Without the practical knowledge of the actual cost of manufacturing arms now secured to the government by the results at the national armories, there would be no standard for determining proper rates for contracts, and without the means which these armories afford to supply the wants of government, there is reason to believe it might be subjected to extraordinary prices for arms required from time to time.

2. As to the propriety of the measure. It is believed that national establishments for the manufacture of arms are necessary, to improve their models and to keep up the standard of materials and workmanship. Whilst the interest and professional reputation of an officer of the army in charge of a national armory would impel him to introduce all improvements, his military associations would lead him to learn, and his military experience teach him, the value of new modifications, made either in his own or other countries. On the other hand, the interest of the private contractor would be to reproduce indefinitely the model originally furnished to him; because every change would require either the abandonment of his tools, machinery, &c., or a modification to adapt them to the manufacture of the improved model. For this reason, and also because his workmen would be less expert upon a new modification than upon a form to which they were accustomed, every change would be to the contractor an evil in which he would see increased trouble and diminished profits.

The national armories are also necessary to keep up the standard of workmanship and finish in the contract establishments. The arms made by contract are subjected to inspection by workmen detached from the national armories for that purpose. These inspectors, when not employed in the contract service, resume their positions at the national armories, and return to each contract inspection with a refreshed recollection of the standard of excellence of the government work. This advantage would be lost if all arms were made by contract; and the tendency would be steady deterioration by the slow and imperceptible

sinking of the standard, instead of the improvement which has resulted from the furnishing of new models and constant improvements in the government manufactures, to which the inspectors require the contract arms to conform.

3. As to the advisability of the measure. If the views taken under the two other heads be correct, it follows that it would not be advisable to make all arms by contract. Neither would I think it wise to restrict the manufacture of all arms to the national armories. Pistols, for instance, are now made by contract, because the number required by government is so small that it was deemed more economical to procure them by contract than to provide the separate machinery and tools required for their manufacture, at least until a model for that arm shall be adopted more satisfactory than the one now in use, and likely, therefore, to be more permanent. Also small numbers of particular arms are sometimes required; and in such cases it may be better to procure them by contract than to provide the machinery required for their peculiar construction. But it is still more important that the government should have the power to contract for the manufacture of arms in the event of an exigency under which a greater number might be required than the public armories, upon a scale adapted to ordinary circumstances, would be able to supply. Instead of any conflict in the use of the two modes of supply, they are believed happily to harmonize in the production of cheap and effective fire-arms. In the last case supposed, the government establishment would furnish the models to private contractors and serve as a guide to fix the price which should be paid; whilst it would protect the government from being driven, by its necessity, to submit to extraordinary demands and perhaps injurious delays.

It is believed that the excellence of the government manufacture has not been quite equaled by that of private contractors, even with all the advantages that now exist in supplying models and inspectors. Upon examination of a report made by the commander of the arsenal, to which the rifles used by the voltigeur regiment in the war with Mexico were returned, it appears that of the total number, five hundred and twenty-three, the two hundred and fifty-seven made at the national armory required the repair of forty-five of their parts—the two hundred and sixty-six made by contract required the repair of ninety-six of their parts; showing a difference in favor of the government arms of more than two to one. The case is believed to be a fair one, and to present conclusive proof of the higher standard of material and workmanship in the government arms.

It is not known whether, by the use of the term "all the arms of the United States," it was intended to include the heavy guns or cannon. I will however remark, that all cannon are now made by contract, Congress having made no provision for a national foundry, and will take this occasion to recommend an appropriation for that object. The just admixture of metals and the casting of bronze pieces require much mechanical skill and no little scientific attainment. The examination of ores and the casting of iron into cannon are subjects which have attracted much consideration from the Ordnance Department, and present a wide field for further investigation and experiment. The rigid inspection which such guns now receive has improved and is still improving their quality; but it is believed there would be a more rapid advance in knowledge, and a higher standard of excellence attained, if the advantage of a national foundry were possessed.

While on the subject of procuring arms for the United States, I deem it proper to refer to a matter which has heretofore received attention and

been the subject of frequent inquiry—that is, the establishment of a national armory on the western waters. The propriety of having such a national establishment in the west is generally conceded; and perhaps one reason why it has not been done is because the two United States armories at Springfield (Massachusetts) and Harper's Ferry (Virginia) are sufficient for the manufacture of all the arms required by the government, and the wants of the country in this respect do not require a third. When the two armories were established, they were necessarily both located east of the Allegheny Mountains, because the manufacturing facilities of the West were then undeveloped, and neither the material nor the labor requisite for them was of easy procurement there. Now, however, the case is just the reverse.

Besides the more equal and equitable distribution of these national establishments, geographically, the removal of one of them to some proper site on the western waters would be a more convenient and economical arrangement than that now existing. It would save the cost of transporting from a manufactory in the east all the arms required for use and distribution in the western part of the country, either for the government or the militia of the Western States. All the materials required for the manufacture of arms are more abundant and cheaper in many places of the West, where motive power, either by water or steam, is readily attainable, and where the services of skillful artisans are to be readily had to any desirable extent and on reasonable terms. These considerations alone seem to render it advisable to establish a western national armory. But when to them is added the fact, that the eastern portion of the country has, for so many years, enjoyed a monopoly of these government manufactories, it appears to settle the question; and as but two armories are wanted to supply all the small arms for the United States, the removal of one of them westward seems the best way of effecting the object. The tools, machinery, and many of the most costly parts requisite for manufacturing, are not difficult of transportation, and may easily and at little cost be sent from either of the armories, and set up in suitable buildings previously constructed for the western armory. The transfer will thus leave no government property behind, but the buildings which may be usefully applied to purposes of private manufacture, and can doubtless readily be disposed of.

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[Letters to W. D., vol. 11, p. 32.]

Indorsement on letter of J. S. Abeel, military storekeeper at Rome Arsenal, to Lieutenant-Colonel Baker, dated October 10, 1853, and referred to the Ordnance Office by Colonel Baker October 20, 1853, relative to paying for the medical services rendered to James Snow, who was injured by firing guns in accordance with General Orders No. 11 of 1853.

ORDNANCE OFFICE,
November 15, 1853.

James Snow, to whom the medical services herein charged were rendered, is not enlisted in the army, but was a hired man at Rome Arsenal, and was injured while assisting in the firing which military storekeeper Abeel thought he was bound to do in compliance with General Orders No. 11 of 1853. I think that the charge ought, *in justice*, to be paid by government; and as it cannot be properly defrayed from the funds of

the medical department, which are applicable only to persons *in the army*, I would suggest that it be paid from that part of the appropriation for the current expenses of the ordnance service, estimated for under the head of incidental expenses.

Respectfully submitted to the Secretary of War.

H. K. CRAIG,
Colonel of Ordnance.

[Indorsement.]

Recommendation of Colonel of Ordnance approved.

JEFF'N DAVIS,
Secretary of War.

WAR DEPARTMENT,
November 15, 1853.

[Letters to W. D., vol. 11, p. 35.]

ORDNANCE OFFICE,
Washington, November 21, 1853.

SIR: I have carefully read the letter of Mr. J. H. Alexander (referred to this office) on the subject of instituting and prosecuting a research, by chemical analysis, into the composition of different kinds of cast-iron, in order to test their relative qualities for the fabrication of iron cannon.

The object had in view by Mr. Alexander is a very important one. It engaged the attention of this department many years since; when it took measures to have the requisite tests made to ascertain the best kind of iron for cannon, in which measures it has made much progress, and developed useful results. The work before final completion was recently interrupted by the death of Captain Walbach, the officer having it in charge. This has, however, only caused its suspension, and it will be resumed and continued under the direction of the ordnance officer who will succeed Captain Walbach in the duty of supervising the fabrication and inspection of the ordnance made at the foundries, as soon as the officer whom it is contemplated to assign to that service (Colonel Huger) can be relieved from his present duties.

In order to form a correct idea as to the researches that should be made, it is necessary to know what has already been accomplished in this respect. I will therefore state, as concisely as possible, the general plan that was proposed, and has been followed in conducting this work, and the progress that has been made in carrying it out, referring for more specific information to the several reports, some of them quite voluminous, on file in this office.

In August, 1843, it was determined to make a critical examination of the quality of the cast-iron cannon then on hand. For this purpose samples were taken from over 2,000 cannon, and their specific gravity, tensile strength, and character of fracture were accurately determined. Neither of these, by itself, was taken to give a reliable indication of the quality of the metal; but by their combination in a proper degree for each, a classification of the cannon, as to their supposed relative excellence was made. This was followed by the practical test of submitting certain cannon of each class to firing with service charges. Their actual endurance was thus ascertained, and was found to correspond with the classification resulting from the combined elements of density, tenacity,

and fracture before determined. In this way a practical rule was attained for ascertaining the fitness of iron for the fabrication of cannon by testing the metal before fabrication in reference to these three elements, and also by testing, in the same way, samples taken from the guns themselves. This rule has been applied in the inspection of cannon made by the contractors, and has resulted in a very decided improvement of their quality as well as enabling the department to abate the hitherto injuriously high proof charges.

Having thus ascertained that the existence of these elements, in a certain degree, was requisite to constitute good gun-metal, the next step taken was a resort to chemical analysis. The object of this was; 1st, a determination of the causes which affected the quality of cast-iron for gun-metal, and to ascertain whether it depended on chemical composition or mechanical agencies; 2d, to find out the proper tests for detecting the presence of injurious elements, and the proportions in which they might be injurious; and 3d, to ascertain the remedy for such defects. For this purpose a chemical laboratory was established at Pikeville Arsenal, and the services of a well-qualified, practical chemist, were obtained.

This chemist was Mr. Campbell Morfit, who, assisted by Prof. James C. Booth, of Philadelphia, as consulting associate, has been engaged for some time past in making analyses of different kinds of cast-iron to ascertain their chemical relation to their fitness for use as gun-metal. This work, before completion, was interrupted, as I have before stated, and is to be resumed under the same chemist, who has heretofore conducted it with much industry, zeal, and intelligence. Several reports of the progress that has been made in this analysis, and of some useful practical results that have been reached, have been made to this office.

But, as the whole course of the investigation has not been traversed, the reports are confined to a statement of the processes that have been followed, and of partial results obtained; the chemist being unwilling to draw, from an unfinished investigation, hasty conclusions liable to future retraction.

The foregoing remarks are, necessarily, in the most general terms, and give but an outline of the work of the Ordnance Department in this particular branch. To have gone into anything approaching detail would have swelled this report beyond a reasonable limit. In order to understand fully the present state of the investigation, what has been, and what remains to be done, would require the attentive reading of correspondence and reports more voluminous than your time will admit of your attending to; but, I trust, of sufficient interest to merit the perusal of any one having the time and taking an interest in the subject; to whom I will be pleased to show them, as also to converse with him on the subject. I may also suggest that a conference with Mr. Morfit, whose residence in Baltimore will make it convenient for Mr. Alexander, or with Professor Booth, would give him much information as to the programme of these chemical investigations, the processes that have been devised and followed in carrying it into effect, the results thus far obtained, and what remains to be done. The expenses attending the analyses have been defrayed from one of the regular appropriations for the service of the Ordnance Department, and on the resumption of the work they may be so defrayed again; at least to the extent to which it was originally and is now contemplated to pursue the research, viz; the practical determination, from the chemical composition of cast-iron, of its fitness for gun-metal. No separate appropriation will be requisite, unless it may hereafter be found advisable to push the researches to a

greater extent, and until that point is determined, I would not recommend one. Mr. Alexander's letter is returned herewith.

I am, sir, very respectfully, your obedient servant,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JEFF'N DAVIS, *Secretary of War.*

[Letters to W. D., vol. 11, p. 37.]

ORDNANCE OFFICE,
Washington, November 23, 1853.

SIR: The inclosed letter from Colonel Huger, commanding at Harper's Ferry Armory, as to whether a State tax can be rightfully laid on United States officers and soldiers stationed there, with a copy of tax bills against him, are respectfully submitted.

This question was brought before the Hon. Mr. Marcy, Secretary of War, 9th March, 1848, by Major Symington, then commanding the same armory, and submitted to the Attorney General for his opinion, but no opinion was, it is believed, given. Mr. Marcy stated, in reply to a subsequent letter, that he considered it a private matter, with which the government had nothing to do.

Since that opinion was given, the question whether the property of the United States and its officers could be seized for State taxes alleged to be due from the United States, for the Carlisle Barracks, was brought before the United States circuit court for the eastern district of Pennsylvania, and Judge Grier's opinion was so fully given against the right, that no appeal was, it is understood, taken. This opinion may be found in full, in the *National Intelligencer*, of 29th July, 1851. Whether it will cover the case of taxes alleged to be due from an *officer* or *soldier* is submitted.

In this case of Harper's Ferry, the act of Congress of 2d April, 1794, under which the purchase of the land was made, required the assent of the State to be first obtained, and it was obtained by an act of the State of Virginia, 28th November, 1794 (see Revised Code 1819, folio 45, chapter 9), and the land then purchased in 1796 and 1797.

The land for the other United States Armory, at Springfield, was purchased under the same act of Congress, and the assent of the State obtained in the same way, and no officer or soldier there stationed has ever been subjected to a State tax.

If you should be of opinion that the State has no right to tax the property of an officer or soldier stationed at a post purchased with the assent of the State any more than to tax the property of the United States, I would respectfully recommend that Colonel Huger be authorized to resist, at the expense of the United States, in the same manner as in Pennsylvania.

I am, sir, respectfully, your obedient servant,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JEFF'N DAVIS,
Secretary of War.

ORDNANCE OFFICE,
Washington, December 20, 1853.

SIR: On the case presented in the letter of Brevet Lieutenant Colonel Magruder of the 15th instant, referred to this office, I have to report:

As regards improvements in arms and munitions of war, which are the results of actual experience in the field, our own limited experience in actual warfare makes us necessarily dependent, in a great measure, on what is done in the military services of other countries. We have availed ourselves of all such improvements as have come to our knowledge, either from reports of our own officers, who have had the opportunity of observing the arms and munitions of other countries, or from foreign publications on military subjects, or from intelligent foreigners coming to this country. From these sources we have derived much valuable information, all of which, after examination and trial in our own service, has been used in devising and arranging our own system of armament for the land service, with the introduction of improvements suggested by the science and talents of our own officers or by the practical ingenuity and knowledge of our mechanics; generally by both acting in conjunction. In this way we have attained a system of armament, which is acknowledged to possess great excellence, but which is not claimed to be perfect, and may be improved by the introduction of such additions or modifications as the results of the experience of other nations may have discovered to be valuable.

The board of officers sent to Europe by the War Department, in 1840, brought back much useful information, and it was, in a great measure, owing to this that our present system of artillery is so complete and efficient. As a general rule I have no doubt of the expediency and utility of the government's adopting the same course, from time to time, to acquire information on military subjects, and to keep pace with other nations in all improvements therein. A board of officers properly selected would probably obtain information which has not reached us, through military publications or other means, which might be usefully applied, and their labors would not be lost, nor the time and expense devoted to their inquiries be wasted, if they ascertain only that our present system is as good as that of any European nation, and not susceptible of improvement by the introduction of any parts of other systems.

In reference to the points specially mentioned in Brevet Lieutenant-Colonel Magruder's letter, so far as they relate to matters coming within the province of the Ordnance Department, I have to remark that we possess a knowledge of the two kinds of war rockets (Congreve's and Hale's) said to be the most effective weapons of the kind for warlike purposes, and also of the method of firing them from tubes or troughs, mounted on portable stands or on light carriages.

The latter rockets, which do not require the directing stick, are the latest improvement in this kind of projectile which has been made known. Although they have been known to us for some time, and we understand the mode of making and using them, we have not had an opportunity of testing, *practically*, their value as weapons of war. Our shrapnel shells (spherical case-shot), with the improved fuse mentioned by Colonel Magruder, are very effective projectiles for field service, and are equal to any, of which we have a knowledge, in any service. We fire them from howitzers and from guns. If any other machines have been prepared for the purpose, which will give a better or as good a range, or possess any advantage over our mode of firing them, they are not known to me.

Our field artillery of bronze embraces the calibers of 12 and 6 pounder guns, and of 32, 24, and 12 pounder howitzers, as also the light howitzer (220 pounds weight), for mountain and prairie service, of 12-pounder caliber; our siege and garrison artillery of iron consists of 24, 18, and 12 pounder guns and 8-inch and 24-pounder howitzers; and our heavy seacoast artillery or fixed batteries, also of iron, includes the heavier and lighter 10 and 8 inch chambered guns, called columbiads, and seacoast howitzers, respectively, and the 42 and 32 pounder guns. Although it may be desirable to have the *largest* caliber of practicable management consistent with the character of the ground where they are to be used, this latter is so diversified as to prohibit the carrying out of this idea to its full extent, without a multiplication of calibers, and a consequent diversity of ammunition and implements, liable and likely to produce confusion, and other evils more serious than any advantages that can be expected from the increase of caliber; among which evils a prominent one is the increased weight of the ammunition, necessarily reducing the quantity that can come within the means of transportation.

As a general principle I am of opinion that the diversity of calibers should be as small as possible, in order to avoid the mixing of ammunition, and to secure the meeting with a supply of suitable kind wherever any is to be found. But this principle again must be applied, as far as practicable, so as not to interfere with facility of movement on the one hand, nor with the range and effective power of the projectiles on the other. Our field artillery, with these ends in view, is now arranged into heavy and light batteries, the former of 12-pounder guns and 32 or 24 pounder howitzers, possessing greater range and power of battering, but less facility of movement, and more weight and less quantity of ammunition; the latter of 6-pounder guns and 12-pounder howitzers, susceptible of rapid movement, and carrying a greater number of rounds, but of less range and power. The one or the other of these is preferable, according to the nature of the operations of an army and the character of the country in which it may be operating. It is accordingly not unusual to find the views of officers, in regard to the proper calibers, differing, and those differences, I think, arise in many instances from applying particular circumstances to the deduction of general principles. As extremes of our field batteries proper, we have, on the one hand, the siege-train of heavier metal, and capable of battering in breach, and on the other, the mountain artillery, of less range and no battering power, but easily carried over the roughest country.

While, therefore, our present system of artillery, small arms, and other ordnance supplies, and the existing state of our knowledge in respect to them, are, in my judgment, not such as to render it *necessary* to send out a board of officers for the purpose proposed, I have no doubt that such a measure would be attended with beneficial results fully commensurate with the expense. I regard the proposed measure, so far as it concerns the affairs of this department, as *advisable*, but not *necessary*.

I consider it probable that important and useful information might also be obtained on military matters coming within the immediate province of other branches of the service; but of this the officers in charge of those branches can judge better than I can, and I leave such matters to their consideration.

Colonel Magruder's letter, with its inclosures, is returned herewith.

I am, sir, very respectfully, your obedient servant,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JEFF'N DAVIS,
Secretary of War.

ORDNANCE OFFICE,
Washington, March 17, 1854.

SIR: Herewith are respectfully submitted answers to the interrogatories concerning the national armories, submitted by the select committee of the House of Representatives appointed to inquire into the propriety of appointing military officers to superintend the manufacture of fire-arms at the national armories, and the construction and management of other government works.

Respectfully, your obedient servant,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JEFF'N DAVIS,
Secretary of War.

Answers to the questions concerning the national armories, contained in the resolution of the select committee inclosed in the Hon. R. H. Stanton's letter to the Secretary of War, of 9th March, 1854.

1st. There is no material difference between the rules and regulations for the government of the operatives employed at the national armories, under the respective superintendencies of civilians and of ordnance officers. The general rules are laid down in the "regulations for the government of the Ordnance Department," drawn up in accordance with the act of 8th February, 1815, section 10. In these regulations for the government of the Ordnance Department, generally requiring the sanction of the Secretary of War to make them valid, there is a special section applicable to the national armories, which, by the law just quoted, section 9, are placed under the direction of, and thus form part of the Ordnance Department.

By turning to the last three editions of Ordnance Regulations, issued under authority of the Secretary of War in 1834, 1839, and 1852 (pages 4, 9, and 6 and those following of the respective editions), it will be seen that in their general requirements and tenor they are the same, varying from each other only in phraseology and minor details, and preserving the same system of government.

By all of them the regulations for the internal government of each armory are left to its superintendent, under the direction of the Chief of the Ordnance Department. These special regulations, as they were found to exist when ordnance officers took charge of the armories, are still in force, with no other modifications than were rendered necessary by changes in the arrangements of the shops, and by verbal amendments to suit them to changes of names, such as foremen of shops, instead of inspectors; watchmen, instead of shop-tenders; the head man of each shop being now called a foreman instead of an inspector, but with the same duties, and the watchmen being also shop-tenders. This will be better understood by reference to the paper herewith inclosed, marked A. In this connection I may remark that the regulation most complained of, and characterized by the opponents of the present system as an arbitrary and tyrannical exercise of power due to *military* supervision, viz, that which prohibits the reading of newspapers and marketing and trafficking in the shops during working hours, is not a new regulation introduced by a military superintendent, but an enforcement of standing rules, necessary to secure a faithful performance of work during the working hours prescribed by the Ordnance Regulations, to preserve

order, and to prevent the religious and political controversies expressly forbidden by the 20th paragraph of the civil superintendent's rules, and essential to the public interest. The rules under both modes of superintendence have been such as are requisite for the proper, efficient, economical, and systematic management of any large manufacturing establishment, and are no more stringent than those in existence in large private factories.

2d. The essential and marked difference between the management of the national armories under the two modes of superintendence consists in the extent to which the regulations for their government have been enforced. A strict compliance with them is now required to be observed, and no delinquency in this respect is tolerated or overlooked.

Every workman is required to be punctual to working hours (unless prevented by sickness or other sufficient cause), and to devote the entire working time, varying in the number of hours according to the season, to his regular occupation. There are two classes of workmen employed at the armories; those who work by the day and those who work by the piece. The day workmen, under both modes of superintendence, have been required to devote a full number of working-hours per day to labor. Under the present mode of superintendence, by military officers, the rule has been enforced for piece-workmen, also, as being requisite on the grounds of impartiality, of order, and of public interest; of impartiality, that there might not be two sets of workmen in the same establishment, the one required to work a given number of hours, the other working more or less time per day at his option; of order, that every workman may have his whole time in the shops occupied by his work, and none to spend in idleness to excite the envy and remarks of his neighbor, or in gossiping, to hinder or delay his neighbor's work; of public interest, that the entire motive power and a disproportionate part of the machinery provided by the government may not be put in use to keep in employment but a few of the workmen. This rule as to working hours was not enforced under the former mode of superintendence by civilians for piece workmen except in so far as to require them to keep up a due proportion of the different pieces required for a complete arm. This laxity, besides the other evils before mentioned which it gave rise to, rendered it extremely difficult, indeed impracticable, to regulate with fairness the rates of pay for piece work; an accurate knowledge of what number of each class of pieces constituted a fair day's work being necessary to fix equitable rates, which are established now on the principles stated in article 23, Ordnance Regulations for 1852. The enforcement of the rules for preserving order and regularity in conducting the operations of the armories and neatness in the workshops essential to the comfort of the workmen who pass so much of their time therein, has been also much more strictly attended to by the military than by the civil superintendents. The result of this enforcement of good regulations, instead of as formerly their mere preparation and publication with a toleration of their loose observance, has shown itself in the improved condition and better management, generally, of the armories well known to me by actual experience, and apparent to all who have noticed these establishments for a series of years past under both systems of superintendence. In the manner of enforcing the regulations, I know of no difference between the civil and military superintendents. Each has been clothed with the same power in this respect, and the military officer cannot exercise, without the risk of his commission and subjection to punishment also by civil courts, and in no case has he exercised, any military discipline over any citizen employed at the armories.

3d. The number of arms made and the expenditure therefor since the superintendence by military officers, and for an equal period during the superintendence by civilians, is as follows:

Springfield Armory.—During superintendence by military officers, arms made, 183,700; expenditure therefor, \$1,887,687.93. During an equal period of superintendence by civilians, 165,967; expenditure therefor, \$2,100,056.20.

Harper's Ferry Armory.—During superintendence by military officers, arms made, 129,454; expenditure therefor, \$1,829,541.31. During an equal period of superintendence by civilians, 143,189; expenditure therefor, \$2,114,570.02.

The periods included in making up the foregoing tables are from the commencement of the superintendence by military officers, in April, 1841, to the end of the last fiscal year, 12½ years, and an equal consecutive period immediately preceding of superintendence by civilians.

4th. The expenditures for the periods included in the foregoing answer, for machinery, buildings, repairs, additions, and improvements, and the products of these expenditures are as follows, viz:

During superintendence by military officers: expenditures at Springfield Armory \$186,865.44; expenditures at Harper's Ferry Armory \$614,489.31.

During an equal period of superintendence by civilians: Springfield Armory, \$188,521.89; Harper's Ferry Armory, \$374,046.46.

The products of these expenditures were, in general terms, at Springfield Armory, during the superintendence of military officers, 159 new machines, and 13 buildings; during the superintendence by civilians, 81 new machines, and 20 buildings; and under both modes all the repairs for keeping in order the public buildings, machines, dams, fences, and grounds.

For the particular details, which, if given here, would make this paper of an unreasonable length, reference is made to the accompanying statement marked B. At Harper's Ferry Armory, the expenditures under this head have been applied also under both modes of superintendence to new machines and buildings, and to repairs for keeping them, as also the dams, races, fences, and grounds, in order. Every workshop of this armory, both at rifle and musket factories, existing at the time a military officer first took charge of it except one (the bell shop, the whole interior of which has been renewed), was found unfit for use, and not worth repair, and has been removed and new and complete shops suitable for manufacturing purposes have been built in their places. The former quarters of the superintendent, now used for offices, is the only building at the musket factory that it has not been necessary to rebuild, and a storehouse at the rifle factory is the only old building that could be retained there. All the others have been constructed since the superintendence by military officers. At both armories, the buildings are now of a decidedly superior character to what they formerly were, and the machines, which have been almost entirely renewed, are of the best kind and most improved patterns.

To understand fully and correctly the differences, in these respects, between the national armories now and what they were under the former mode of superintendence, it is necessary that there should have been a familiar acquaintance with them during both periods. Such an acquaintance I have had, and I do not hesitate to say that they have been changed from establishments discreditable, in the general character of their buildings, police, and arrangements, as *national* manufactories, to such as have no superiors in these respects in this or any other country, and in which the nation may justly take pride.

5th. The kinds of arms made during the same periods are as follows, viz: at Springfield Armory, under the superintendence of military officers, 25,221 flint-lock muskets, of the improved model of 1840; 4,506 cadet muskets, of the improved model of 1840; 6,660 musketoons, of the improved model of 1840; 147,313 percussion muskets, of the improved model of 1840—total 183,700.

Under the superintendence of civilians: 160,467 flint-lock muskets, of the old model of 1822; 300 flint-lock cadet muskets; 5,200 flint-lock muskets, of the model of 1840—total 165,967.

At Harper's Ferry Armory, under the superintendence of military officers: 15,138 flint-lock muskets, of the improved model of 1840; 89,929 percussion muskets, of the improved model of 1840; 3,190 Hall's rifles; 1,100 Hall's carbines; 20,196 new model percussion rifles—total 129,454.

Under the superintendence of civilians: 119,689 flint-lock muskets, of the old model of 1822; 3,800 flint-lock muskets, of the improved model of 1840; 17,680 Hall's rifles; 2,020 Hall's carbines—total 143,189.

The average cost of these arms was as follows, viz: under superintendence of military officers, at Springfield Armory: \$10.27 $\frac{5.9}{100}$. Under superintendence of civilians: \$12.65 $\frac{3}{10}$. At Harper's Ferry Armory, military officers, 14.13 $\frac{2.7}{100}$, civilians, 14.76 $\frac{7.6}{100}$.

The foregoing cost of arms are irrespective of the expenditures for buildings, lands, &c., stated in the answer to the 4th question, these being supposed worth their cost. But the differences in the cost of arms under the two modes of superintendence (viz, \$2.37 $\frac{7.1}{100}$ per arm at Springfield, and 63 $\frac{4.9}{100}$ cents per arm at Harper's Ferry), amount on the number of arms made at those armories respectively during the superintendence of military officers to \$518,863.61 in favor of this mode of superintendence; being but \$19,922.79 less than the total excess of expenditure for all the machinery, buildings, repairs, additions, and improvements, while the difference in value of machinery alone at one of the armories is \$64,873.97—more than thrice this total excess; so that if all the buildings, repairs, additions, and improvements (which are permanent, well made, useful, and creditable), are set down as *worth nothing*, there will still be a considerable gain in the machinery alone. This 5th question also includes the relative quality of the arms made under the two modes of superintendence. Of those made under the superintendence of civilians, about 97 in a hundred were of the old model, an arm decidedly inferior, in workmanship and material as well as in pattern, to the new model arm, which alone has been made under the superintendence of military officers. The new model arms, made under the superintendence by civilians (about three in a hundred of all so made), are of superior quality to those of the old model, and this improvement in quality has gradually and steadily advanced under the superintendence by military officers, in the accuracy and uniformity of the component parts, the excellence of the material, and the skillfulness of the workmanship. The proof of this is to be found in the results of the actual use of these arms by troops in service, both in peace and war, in garrison, in the swamps of Florida, and in the scouts and marches of our western frontier. During all the vicissitudes incident to this variety of service, these arms have maintained an unquestioned character of high excellence. Against this evidence can only be adduced the opinions of two civilians, late commissioners to inquire into the affairs of the armory, of neither of whom have I ever heard as being present when muskets were used in actual military service. I respectfully call attention to the evidence on this point contained in the accompanying papers marked C.

As applicable to the question concerning the quality of the arms made

under the superintendence by military officers, I subjoin the following extract from an official report by the United States inspector of armories of his inspection of Harper's Ferry Armory in July, 1852:

The completeness of the present system [of superintendence by military officers], so far as *uniformity in construction* is concerned, is made manifest by the late submersion of some 20,000 arms during the highest flood ever known at the place. In cleaning those arms 9,000 percussion muskets have been stripped and completely dismantled, their parts being thrown into great masses, and after being repaired the arms are re-assembled from these lots of 9,000 components having no distinguishing mark—every limb filling and fitting its appropriate place with perfect exactness. Had not this perfect uniformity existed, the parts of each arm must have been separately distributed—boxes must have been provided for these several and numerous parcels, great care would have been requisite to avoid a mixture. Every limb of every musket must have been numbered and the expense of the operation would have been greatly increased.

All these inconveniences have been obviated by that system of uniform dimensions, even in the simplest and minutest components of the arm, which obtains in such perfection at this armory.

To determine whether this general uniformity extended to the fabrications of both national armories, I caused a musket of the manufacture of 1851 of each armory to be taken to pieces, and then applied all the components of one to the other, mixing them in almost every possible manner, and applying the parts likewise to the receiving gauges. The result was, the *components*, as well as the *whole*, were identical for every practical purpose. Only one almost inappreciable variation in the length of the front end of the lock-plates being detected, and this did not prevent a perfect assembling of the arms.

This report, as also one of the inspection of Springfield Armory in October, 1852, may be found in the printed Executive Documents No. 1, Thirty-second Congress, second session, pages 243 to 251. I respectfully invite special attention to these reports, and also to Inspector General Churchill's report of his inspection of Springfield Armory, in November, 1853, and request that a copy of it may be sent to the select committee.

6th. The average amount of wages per month received by the armorers under the respective superintendencies have been \$38.30 $\frac{8}{10}$ per man during the superintendence by military officers, and \$36.99 per man during an equal period immediately preceding, under the superintendence by civilians; making the average daily wages, respectively, \$1.53 and \$1.48.

7th. The conditions as to the continuance of workmen in employment at the armories leave every one at liberty to quit when he pleases, and the commanding officer is at liberty to cease to employ any one when he pleases. Discharge from employment is the only penalty consequent on misconduct or violation of regulations. A month's notice is given, if possible, when workmen are to be stopped for want of work, and those who intend to leave the armory for other employment are expected, when they can do so, to give the like notice.

8th. There is not and never has been any difficulty in obtaining any number of good and competent armorers or other workmen at the rate of wages paid and under the superintendence of the armories by military officers. The difficulty in this respect at Harper's Ferry is to get rid of inferior workmen, who have been so long employed as to consider themselves to have a prescriptive right to work there. At Harper's Ferry, also, for want of schools and society there is a local difficulty in getting superior workmen from other places to stay, but none on account of the wages or superintendence by a military officer. In conversing on this subject with two of the most intelligent, experienced, and respected manufacturers of New England, Messrs. John Chase and James T. Ames, of Chicopee, near Springfield, the former stated to me that he could not keep a workman in his shops if he could get employment at the na-

tional armory, and the latter said that Colonel Ripley (the commanding officer of Springfield Armory) could empty his shops and those of the neighborhood of workmen, if he wanted to employ so many. The wages of the workmen at the armories, as well as of all other hired citizens in the employment of the Ordnance Department at the arsenals, are regulated on the principle of paying the same rates which similar services and skill command in the vicinity of their places of employment.

9th. The employment of military officers to superintend the national armories affords to the War Department important means of improving the quality and character of fire-arms, which it could not have from civil superintendents. These officers have a practical and professional knowledge of what is requisite to make a good and serviceable *military weapon*. They are, by the education given them at the Military Academy, and by their subsequent practical acquirements from experience, more likely than citizens to gather from the military publications of other countries, and to notice the advances there reported in the improvements of the armament of troops in other services, and better qualified to devise and conduct experiments to test the accuracy of the reported results, and thus form a correct judgment as to the expediency of adopting or rejecting them in our service. At this very time experiments of this character calculated to improve the range of fire-arms in reference to the principles of the "Minié rifle" and "carabine à la tige" are in satisfactory progress at one of the armories. However skillful a mechanic or ingenious an inventor may be, taken from civil life, to fill the place of superintendent, he will probably not possess in the same degree as a military officer the professional knowledge in regard to the essentials of a military weapon, which by no means necessarily pertains to high mechanical ingenuity exhibited in its invention or its construction. A combination of the mechanical skill of the master-workmen and other operatives with the professional knowledge and experience of the military officer secures the most advantageous management of the national armories.

10th. The average prices paid at each armory for the last twenty-four years for the principal materials used in the manufacture of arms are as follows, viz:

	Stocks, each.	Steel, per pound.	Iron, per ton.	Coal, per ton.	Charcoal, per bushel.	Oil, per gallon.
At Springfield Armory.....	\$0 28	\$0 16, 15	\$141 45. 5	\$9 63. 5	\$0 06. 87	\$0 97. 5
At Harper's Ferry Armory.	23. 5	18. 63	146 13	8 86	0 07	1 22. 75

And the average price for labor on arms has been about \$1.50 per day.

The average prices now paid for materials are as follows, viz:

	Stocks, each.	Steel, per pound.	Iron, per ton.	Soft coal, per ton.	Anthracite coal, per ton.	Charcoal, per bushel.	Oil, per gallon.
At Springfield Arm- ory.....	\$0 28	\$0 16	\$160 00	\$7 42	\$7 16	\$0 08	\$1 30
At Harper's Ferry Armory.....	0 25	0 16	190 00	3 14	6 00	0 08	1 45

And the average price now paid for labor at the armories is about \$1.59½ per day—at Springfield, \$1.63; at Harper's Ferry, \$1.56. Both

modes of superintending the national armories by civilians and by military officers have been tried. We are not, therefore, left to conjecture, or to abstract reasoning to determine which is preferable, but have the test of actual experience. That has proved that "the appointment of military officers to superintend the manufacture of arms at the national armories" is not only compatible with, but highly advantageous to, the public interest. Whether there is anything in such appointments "not consistent with the nature and character of our civil government," is a question of a political rather than a military character, and as such it may not be within my province to answer it. Taking a common sense view of it, I may remark that as the *law of the country* (act February 8, 1815, sections 3 and 9) makes it the duty of the Colonel of Ordnance to attend to the manufacture of arms and all kinds of ammunition and ordnance stores, and places the national armories under the direction of the Ordnance Department, it would seem both unreasonable and unjust to deprive him and the department of the means of properly and efficiently accomplishing what the laws require of them, which will be the inevitable effect of changing the present mode of superintending the national armories.

[130 W. D., 1854.]

WASHINGTON, May 15, 1854.

SIR: I am directed by the Select Committee of the House on Military Superintendencies over Civil Works to communicate to you the passage of the following resolutions by that committee, and to request your early attention thereto:

Resolved, That the Secretary of War be requested to express to this committee, in view of the extent and population of the United States and all other considerations properly bearing upon the subject, his opinion as to the number of small-arms that should at all times be on hand in our armories, arsenals, and public depot of arms, to supply the wants and requirements of the public service, distinguishing each kind.

2d. To state the number now on hand deemed fit for effective service and where deposited, and whether the old flint-lock muskets or the same altered for percussion locks can be safely and judiciously used in war.

3d. What number of private armories have contracts with the government for the supply of small-arms, where situated, by whom conducted, and the number of muskets and rifles for the last 12 years obtained from private armories, distinguishing each year and their cost to the government.

4th. Whether the national armories are not competent to the manufacture of all the small-arms needed for the service of the United States, and whether sound policy would not prescribe the vigorous and effective employment of the machinery and capital of the government in preference to a reduction of appropriations for the manufacture of arms at the national armories, and the resort to purchases from the private armories.

5th. From what appropriations the purchases of arms from the private armories are made.

Respectfully, yours,

R. H. STANTON, *Chairman.*

To the Hon. JEFF'N DAVIS,
Secretary of War.

[Inclosure.]

WAR DEPARTMENT, May, 1854.

SIR: In answer to your letter of the 15th instant, communicating certain resolutions of the Select Committee on Military Superintendencies over Civil Works, and requesting my early attention thereto, I have to state, in regard to the 1st resolution: When the estimate from the Ord-

nance Bureau for the manufacture of arms at the national armories was first reduced from the usual annual sum of \$360,000 to \$250,000, in October, 1851, the proposed reduction was placed on the ground of the stock of small-arms then on hand, about 565,000. It is now 665,542, and although the supply of arms may appear large, the views of the Ordnance Bureau as then stated are applicable now. These views were that the stock should be kept up. Inquiries are now pending as to the best mode of altering the old pattern of the musket so as to make it conform to the new model. This musket when altered is nearly as good as the new model, being an efficient and serviceable arm; and objectionable mainly because its parts will not interchange with each other, or with those now manufactured. None of the old flint-lock muskets can be judiciously used without previous alteration to percussion, and of the whole number on hand it is probable that about 35,000 are susceptible of such alteration.

To the 3d resolution I answer: Messrs. E. Remington & Son, of Ilion, Herkimer County, N. Y., have a contract with government for the supply of 5,000 rifles, of which 3,740 have been supplied, leaving 1,260 to be delivered. Mr. Eli Whitney, of New Haven, Conn., has a contract for the supply of 5,000 rifles, of which 1,000 have been supplied, leaving 4,000 to be delivered; Mr. Ira N. Johnson, of Middletown, Conn., has a contract for the supply of 10,000 percussion cavalry pistols, of which 5,000 have been supplied, leaving 5,000 to be delivered.

Of the foregoing contracts, that with Messrs. Remington & Son was made 1st November, 1851 and is an extension of a contract for 5,000 rifles originally made with John Griffith, of Cincinnati, and transferred by him, with the sanction of the War Department, to Messrs. Remington & Son; that with Eli Whitney is dated 2d March, 1853, and is an extension of previous contracts for rifles with him; that of Ira N. Johnson is dated 28th March, 1851, and is an extension of a previous contract for pistols with the same armory. These contracts were entered into originally for the purpose of procuring a sufficient supply of arms to meet requisitions for arming the militia under the law of 1808, when the products of the national armories alone were insufficient for this object, in addition to supplying the United States troops. Since then they have been renewed or extended from time to time; mainly on the ground taken by the contractors, that a sudden discontinuance of government work before they had time to adapt their works to other purposes would involve a serious sacrifice; and the last extension, that to Mr. Whitney, was stated to be granted to him "to prevent a sacrifice of his establishment and to enable him to adapt his works to other purposes." There are no other private armories than the three before mentioned which now have contracts with the government for the supply of small-arms. The accompanying tabular statement, No. 2, furnishes the information called for by the latter part of this resolution.

To the fourth resolution I answer that, considering the present stock on hand, the national armories are competent to the manufacture of all the small-arms needed for the service of the United States, excepting pistols. The number of these arms required by government is so small that it is better to procure them by contract than to provide the separate machinery and tools required for their manufacture, at least until a satisfactory model be decided on. Sound policy prescribes the manufacture of all government arms at the national armories, by the vigorous and effective employment of the government machinery and capital, and the discontinuance of the contract system, except for pistols and for small numbers of particular arms required, from time to time, for special

purposes, the machinery required for the construction of which is not in use at the national armories. It is therefore considered advisable not to renew or extend existing contracts for small-arms, but to apply the funds now required to pay contractors to the more vigorous prosecution of work at the national armories as the contracts expire. These funds, added to the present usual appropriations for the manufacture of arms at the national armories, will be sufficient, it is believed, to secure a vigorous and effective employment of the government machinery.

To the fifth resolution I answer: the purchases of arms from private armories are made from the appropriation for arming and equipping the militia.

Very respectfully, your obedient servant,

JEFF'N DAVIS,
Secretary of War.

Hon. R. H. STANTON,
Chairman Select Committee.

[138 W. D., 1854.]

SENATE MILITARY COMMITTEE,
Washington, May 22, 1854.

DEAR SIR: I take leave to inclose herewith a resolution referred to this committee by the Senate "to inquire into the expediency of allowing the States to return the useless arms and flint-lock guns distributed under the act of April 28, 1808, &c."

The committee would like to have the views of the War Department thereupon, as well as the plan of carrying the same into effect.

I have the honor to be, with great respect, &c.,

JAS. SHIELDS.

Hon. J. DAVIS,
Secretary of War, Present.

[Inclosure.]

WAR DEPARTMENT,
Washington, June 2, 1854.

SIR: I have the honor to acknowledge the receipt of your letter of the 22d ultimo, inclosing a resolution of the Senate instructing the Committee on Military Affairs to inquire into the expediency of so altering the law as to authorize the States to return the flint-lock small-arms received by them under the act of April 23, 1808, to the government, and receive their value in percussion muskets and rifles originally manufactured as such at the United States armories, &c., and asking the views of the department thereupon, as well as a plan for carrying the same into effect, and in reply have to state that, when the percussion lock was adopted for the service, in lieu of the flint-lock, all the arms of the latter kind in the possession of the United States were inspected. Those not of obsolete patterns, or unserviceable from damage, were retained and altered to percussion, and now constitute the larger part of the small-arms in our arsenals. The others, considered unfit for use in the service, were sold.

Much labor and considerable expense attended the alteration of the arms, but these were fully compensated by ridding the arsenals of all

arms unfit for use in war, and converting the others into serviceable percussion arms.

One effect of altering the law as suggested by the resolution would be to throw upon the government a large quantity of the very kind of arms sold, as above stated, as unfit for use. The proposed exchange would otherwise operate injuriously to the public interests by taking from the arsenals where they are well cared and accounted for our best arms, and putting them where there is little provision made for keeping them in serviceable order for the contingency of war. This is known to the department from the fact that when militia are called into the service of the United States they do not come armed, but have to be supplied from the government arsenals.

Many of the States have already had their flint-lock arms, which were in good condition, altered to percussion, and all of them can have the same done at the United States arsenals for the actual cost of the work, which averages about eighty cents per arm.

Should this course be adopted, it will only be necessary for the States which desire to avail themselves of the benefit of it, to give notice to the Ordnance Department, which will advise them of the arsenal to which the arms should be sent for alteration, the cost of which will be charged to, and deducted from, their next year's quota under the law of 1808.

The arms so altered are mainly objectionable in the United States service because their parts are not so uniform as in the new percussion arm.

This uniformity is not material where the arms are used chiefly for instruction, and at places where there are facilities for repairing or replacing the parts, but it is material in the service in time of war, and when such facilities are not at hand, that the parts should all interchange.

For these reasons, and because it is desirable that the arms of the United States should be of as few patterns as practicable, the proposed exchange of the standard model arms for those of a model no longer manufactured is deemed inexpedient, and I respectfully recommend that it be not adopted.

The resolution of the Senate is herewith returned.

Very respectfully, your obedient servant,

JEFF'N DAVIS,
Secretary of War.

Hon. JAMES SHIELDS,
Chairman Committee on Military Affairs, Senate.

[89 A, 1854.]

ADJUTANT-GENERAL'S OFFICE,
Washington, June 10, 1854.

[CIRCULAR.]

SIR: I am instructed by the Secretary of War to furnish for your government the following regulations adopted by the War Department, respecting the assignment of officers of staff corps and departments, to wit:

1st. The rank of the officer to be assigned will correspond with the importance and responsibility of the station he is to fill.

2d. No officer will remain continuously at the same station for a

period longer than four years, except under special circumstances, to be authorized in each case by the War Department.

3d. As far as practicable, exchanges or reliefs will be made according to the principles which govern military details, to wit, field officers to exchange with officers of like grade, captains with captains, and subalterns with subalterns.

I am, sir, very respectfully, your obedient servant,

S. COOPER,
Adjutant-General.

To Col. H. K. CRAIG,
Ordnance Department, Washington, D. C.

[232 W. D., 1854.]

ORDNANCE OFFICE,
Washington, July 7, 1854.

SIR: Referring to the instructions of the 10th ultimo, assigning limits to the duration of service of officers of the Ordnance Department at the same station, I have the honor to report that the only officers of the department who have exceeded that limit are Major and Brevet Lieutenant-Colonel Ripley, at the Springfield Armory; Captain and Brevet Major Mordecai, at the Washington Arsenal; Captain Maynadier, assistant in the office of Colonel of Ordnance, and First Lieutenant Rodman, at Allegheny Arsenal.

I have to request to be informed whether any of these officers are to be considered as coming within the scope of the exception contained in the second paragraph of the order. At the same time I would respectfully recommend that the exception be applied in the case of Captain Maynadier, who possesses peculiar fitness for the post he occupies.

Very respectfully, your obedient servant,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JEFF'N DAVIS,
Secretary of War.

[Indorsement.]

The Chief of Ordnance will indicate the station to which he proposes to order Colonel Ripley and Major Mordecai.

J. D.

WAR DEPARTMENT, *August 16, 1854.*

[190 W. D., 1854.]

(Circular.)

WAR DEPARTMENT,
Washington, July 20, 1854.

In consequence of apprehensions expressed by disbursing officers as to their liability for moneys deposited by them with the assistant treasurers and depositories of the United States, in pursuance of General Orders No. 4, in case of the loss of such moneys by accident, mistake,

or embezzlement, an inquiry was addressed to the Treasury Department on the subject, and has been answered, to the following effect:

These deposits are made with the Treasurer of the United States, the assistant treasurers, and certain designated depositories, under the provisions of the first section of the act of 6th August, 1846. Herein the officers act as fiscal agents, and they give bond with covenants as well to discharge the duties of their nominal offices as to perform all other duties as fiscal agents of the government, which have been or may be imposed by any act of Congress or by any regulation of the Treasury Department, made in conformity to law. The public money whilst in the hands of disbursing officers, and on the deposit with the Treasurer and other depositories, has thus for its security the same legal sanctions and safeguards which are provided for public moneys yet undrawn by warrant from the Treasury.

In the event of the loss of money so deposited, the practice of the Treasury Department would authorize the amount to be transferred, and added to the funds in the hands of the same depository, and the depositing officer thereupon credited.

JEFF'N DAVIS,
Secretary of War.

[189 W. D., 1854.]

SENATE, *Washington, July 25, 1854.*

SIR: The army appropriation bill has come from the House to the Senate with a proviso requiring the removal of the ordnance officers from the charge of the national armories, and the substitution of civil superintendents.

The law, however, still remains which places these establishments under the direction of the Ordnance Department. Will you be pleased to inform me of your opinion on this question, and in particular, whether your department will find any serious practical difficulty in applying the two laws, one of which places the armories under the direction of a military department, and the other aims to remove the control of military officers?

I have the honor to be, with great respect, &c.,

JAS. SHIELDS.

Hon. JEFFERSON DAVIS,
Secretary of War.

[Inclosure.]

WAR DEPARTMENT,
Washington, July 26, 1854.

SIR: I have had the honor to receive your letter of the 25th instant, informing me that the army appropriation bill has come to the Senate from the House of Representatives, with a proviso requiring the removal of the ordnance officers from the armories—while those works are still continued under the direction of the Colonel of Ordnance—and requesting my opinion of the effect of the proposed change in the law, and, in particular, whether the department will experience any serious difficulty in executing the two laws in regard to the control and government of the armories.

In reply I have the honor to say that there will be found that difficulty in the operation of the two laws which your letter indicates. The one interposes a civil superintendency between the Colonel of Ordnance and the armories, in order to remove the military control, while the other law requires the military department to continue to exercise the control. Formerly, when civil superintendents were placed over the armories, the direct and efficient control of the armories was by law vested in the military department to which they belonged. The new law will create a difficulty, which to me appears practically insurmountable.

It is the decided and repeatedly declared opinion of this department, founded on the results of actual experience, that the enactment of the proviso which has passed the House will seriously impair the efficiency and utility of the national armories. The law, as it now stands, proscribes no class, but authorizes the President to select persons for the control and management of the public armories from civil or military life, and affords the greatest possible latitude for proper selection. But if it shall be determined by law that the public manufactories of arms for the military service ought not to be under the direction of military officers, then I respectfully suggest that those establishments ought not to be continued under the authority of a military department but made independent of it as a branch of the civil service. The national armories as now conducted have been, and I think will be, highly useful establishments; but if they are to become the objects of class legislation and partisan conflict, I believe it would be better to discontinue them and to procure arms for the military service from private armories, by contract.

I am, however, as assured in the opinion that the munitions of war ought to be provided at public armories under the direction of military officers, as that forts, arsenals, navy-yards, and dock-yards belonging to government ought to be controlled and administered by the officers of that department of the public service with which they are naturally connected. It is not necessary under such organization—it is not true—that the hired mechanics and workmen now employed at the armories are subject to military law or restrained of any of their civil rights. Only the officers and enlisted men of the army are subject to military law—the mechanics hired at all public works engage only for such term as they please, and leave the service whenever it suits them. That the service is not a hard one, is evidenced from the eagerness with which it is sought. In this respect the nature of the control exercised by the military officers is the same at the armories as it is at the arsenals, in the navy-yards, on the fortifications, the works of internal improvement, and wherever hired mechanics engage to execute any work for the military service. I have serious doubts if the continuance of the armories in the manufacture of muskets is, at this time, desirable. We have now 600,000 stands of small-arms in the United States arsenals, and a large number have been distributed to the States. The many changes and improvements in fire-arms render it unadvisable to accumulate a very large number of one model, and the discovery of weapons of greater range than muskets make it doubtful if the musket will continue to form the principal weapon for foot soldiers. In conclusion, I would ask, Why should the national armories have been specially selected as trusts for which a soldier is unworthy? It is not there alone that mechanics are employed in construction or manufactures for the military service under officers both of the army and of the navy. It cannot be because the military profession implies ignorance of arms or leads to carelessness in their manufacture.

I believe the proposed exclusion of officers of the army from the right to be selected as superintendents of the national armories to be a discrimination, unmerited by their conduct in peace and in war, uncalled for by considerations for the public good, and probably detrimental to the efficiency of our military weapon.

Very respectfully,

JEFF'N DAVIS,
Secretary of War.

Hon. JAS. SHIELDS, *Senate.*

[221 W. D., 1854.]

ORDNANCE OFFICE,
Washington, August 7, 1854.

SIR: The good order and system which have been introduced into the management of the two national armories during the time they have been under the immediate control of officers of the army are such, and in their effect promise to be so enduring, that it is believed no ill effect will arise from an omission, for a few months, of the appointment of civilians as superintendents to these establishments; thus allowing time for selecting unobjectionable persons for those offices. The principal argument used for the change in the system, by the advocates for the change, was the propriety of these establishments being under the immediate control of civilians and mechanics. There are now at each of the armories a master armorer whose qualities fulfil all the requirements of advocates for the change.

By the regulations of the Ordnance Department the control of the armories devolve upon the master armorers in the absence of the superintendents, a duty for which their mechanical knowledge and business habits qualify them.

The present master armorers, Allyn and Byington, are skillful, trustworthy, and well fitted to discharge the duties which would devolve upon them by a delay in the appointment of superintendents. I have, therefore, no hesitation in recommending that they be left in temporary charge of the armories. By pursuing this course, another difficulty which will present itself will be obviated—that of fixing the compensation of the superintendents, as I am informed the proviso requiring the change makes no provision for those officers, and the law fixing the compensation, &c., of civil superintendents was repealed by the act of August 23, 1842.

I am, sir, very respectfully, your obedient servant,

H. K. CRAIG.

Colonel of Ordnance.

HON. JEFF'N DAVIS,
Secretary of War.

[Indorsement.]

The officers of the army now in charge of the armories will be relieved and the establishments placed temporarily in charge of the master armorers, as recommended.

JEFF'N DAVIS,
Secretary of War.

11TH AUGUST, 1854.

[137 A, 1854.]

MOUNT VERNON ARSENAL, ALA.,
August 18, 1854.

SIR: I have the honor to inclose herewith an account* presented by

*NOTE.—The certificate to the account was as follows: "The above-named non-commissioned officers and privates of company F, second artillery, were employed at Forts Pickens and McRae, in charge of and in cleaning ordnance and ordnance stores.

F. WOODBRIDGE,
Captain, Second Artillery, &c.

Major Woodbridge in behalf of some of his men employed at the forts in Pensacola Harbor.

These men have not been employed under my immediate direction, nor could I certify to the account. At the same time they have assisted the ordnance sergeant, to whom I have from time to time given directions. Whether their services come within the scope of article 56, Ordnance Regulations, I cannot tell. They appear to be entitled to *per diem* from some department. I beg your instructions as to the payment of the accounts.

Very respectfully, your obedient servant,

J. GORGAS,

Lieutenant of Ordnance, Commanding.

Col. H. K. CRAIG,
Chief of Ordnance.

[1st indorsement.]

ORDNANCE OFFICE,

August 26, 1854.

Respectfully referred to the Adjutant-General of the army. Are services as stated in the within account such as are intended by the Army Regulations to come within the provisions of the act of March 2, 1819, to regulate the pay of the army when employed on fatigue duty?

H. K. CRAIG,

Colonel of Ordnance.

[2d indorsement.]

The charge and cleaning of ordnance and ordnance stores are considered as a part of the appropriate duties of artillery troops. The services stated in the within account do not, therefore, come within the provisions of the act of March 2, 1819. The troops at Barrancas are intended for the protection of *all* the forts in the harbor of Pensacola and the preservation of their armaments.

Respectfully returned.

S. COOPER,

Adjutant-General.

ADJUTANT-GENERAL'S OFFICE, *August 29, 1854.*

[153 A, 1854.]

ORDNANCE OFFICE,

Washington, August 31, 1854.

SIR: I submit herewith for your consideration and instructions a statement of the present stations of ordnance officers, with the changes therein which I suggest in consequence of the regulations of the 10th June, 1854, and the relief of the army officers from the charge of national armories. The statement contains the names of officers at their present stations in black ink, with a line run through those whom it is proposed to change. The names of the officers whom it is proposed to assign to or continue at the different stations are in red ink.

This manner of preparing it has been adopted as exhibiting the entire proposed arrangement in the shortest and readiest way.

Very respectfully, your obedient servant,

H. K. CRAIG,

Colonel of Ordnance.

Hon. JEFF'N DAVIS,
Secretary of War.

[1st indorsement.]

One of the field officers of ordnance will be assigned to the Department of the Pacific, and in changing the stations of officers those posts at which they have not served will be preferred, the object being to enlarge the sphere of observation and to avoid a localizing effect, neither of which results would be attained by rotation between two or three posts.

JEFF'N DAVIS,
Secretary of War.

WAR DEPARTMENT, *September 7, 1854.*

[2d indorsement.]

Respectfully referred to the Colonel of Ordnance.

S. COOPER,
Adjutant-General.

ADJUTANT-GENERAL'S OFFICE, *September 8, 1854.*

[Inclosure.]

ORDNANCE OFFICE,
Washington, September 9, 1854.

SIR: Referring to that portion of your indorsement on my report of 31st ultimo, prescribing a rule which should operate in changing the stations of officers of the Ordnance Department, I would respectfully suggest that too strict adherence to that rule would be a source of some embarrassment to the department, involving the necessity of the removal of some officers to make vacancies whom it was not intended to disturb. I would, therefore, respectfully propose for your consideration and approval the following modifications of the rule, viz: After an officer has served two tours at other posts he may be returned to a post where he had served one tour before, and after serving three tours at three other posts may be returned to a post where he had served twice previously.

With much respect, your obedient servant,

H. K. CRAIG,
Colonel of Ordnance.

[Indorsement.]

This small circle of rotation is not approved; the indorsement referred to will be construed in connection with the regulation to which it applied.

JEFF'N DAVIS,
Secretary of War.

WAR DEPARTMENT, *September 9, 1854.*

TREASURY DEPARTMENT,
Second Comptroller's Office, September 27, 1854.

SIR: To obviate, in future, the difficulties that have heretofore existed in ascertaining the respective liabilities of sureties on official bonds, some change in keeping and rendering the accounts of disbursing officers, which are revised in this office, is required.

You will be pleased, therefore, to keep your accounts with the United States separate and distinct under every bond given by you, and to

state, in the caption of each quarterly account, *the date of the bond* under which it is rendered.

The balance, if any, due to the United States under the first series of accounts will not be carried into the second or subsequent series rendered under a new bond; but the account will be closed by the payment of the balance found to be due; and in making your deposits you will designate, by the date of the bond, the accounts to which the sum is to be applied, and also the appropriations to which it is refunded.

It is to be understood, however, that additional or cumulative bonds do not operate to release the sureties on prior bonds, though a settlement under each is necessary to fix the times when successive sureties become liable, and to ascertain the amount of their liability.

Your accounts are to be made up and rendered, in all cases where one series ends and another begins during a quarter, to the end of such quarter. For example: the commission of A. B. expires on the 9th of May; he is re-appointed, and gives a new bond on the 10th of May; the accounts are to be rendered up to the 9th of May, inclusive, in one series, and a second series commences on the 10th of May and ends on the 30th of June, inclusive; and so on, quarter-yearly, until such time as he may cease to be in office.

I am, very respectfully, yours,

JOHN M. BRODHEAD,
Comptroller.

To all DISBURSING OFFICERS.

[291 W. D., 1854.]

WAR DEPARTMENT, *October 21, 1854.*

DEAR SIR: The Secretary desires me to return you the estimate of your bureau, and call your attention to the question of omitting the item for the manufacture of arms at the national armories.

Yours, respectfully,

A. CAMPBELL.

Col. H. K. CRAIG.

[Inclosure.]

ORDNANCE OFFICE,
Washington, October 23, 1854.

SIR: I have to acknowledge the receipt of the note from the War Department of the 21st inst., returning my estimate for the next fiscal year and calling my attention to "the question of omitting the item for the manufacture of arms at the national armories."

To omit this item would be tantamount to a recommendation to stop all work at the armories, and to throw out of employment all who are now engaged at these establishments. I do not feel authorized to recommend so extreme a measure as the entire stoppage of operations at the national armories, especially under present circumstances, when such recommendation cannot but be attributed to hostility to the recent change in their management.

Although I do not deem it expedient to go on increasing the supply of muskets of the present model, I consider it proper to estimate for the means of manufacturing at the armories, on other and improved models that may, and probably will, soon be adopted. Experiments are now

going on with a view to determine the details of such models, especially as regards the use of rifled barrels with minie balls, instead of smooth bores; and the preparation of a new self-priming lock, which may be adapted to any model, is in progress. For the purpose of fabricating improved arms of a new model and of altering those of our present model, if found practicable, so as to include the improvements of the new, it is necessary to have the means of carrying on operations at the armories.

For these reasons I have included in my annual estimate the usual amount "for the manufacture of arms at the national armories," not deeming it advisable to omit or to reduce it. It will not be used farther than it may be found that it can be applied advantageously to the public interest.

The estimate is respectfully returned herewith.

Respectfully, your obedient servant,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JEFF'N DAVIS,
Secretary of War.

[Indorsement.]

Satisfactory.

J. D.

[305 W. D., 1854.]

WINDHAM, CONN.,
October 26, 1854.

SIR: Whilst on duty at Fort Snelling I received order No. 160, assigning me to duty in the Department of the Pacific. This assignment to a new duty, evidently of less importance than that from which the order relieves me, and the superseding me in my position by a junior officer, appears to me so adverse to the uniform previous practice, which had established, as peculiarly appropriate to the second officer of the corps, the duty of inspecting the armories and arsenals, that the order consequently found me quite unprepared for the immediate execution of instructions to be based upon it. I have, therefore, to request that your instructions may be postponed until April next, and, in the mean time, I can but believe that the War Department, in reconsidering its order, and its effect upon me, will do me the justice so to modify its conditions as to remove the impression, which I am apprehensive it has created, unfavorable to my professional standing.

I might likewise advance a claim for such delay, founded upon a state of health not altogether free from infirmity, or upon an abstinence of twenty years or more from all applications for leave of absence from duty but I trust the honorable Secretary of War will not require these additional reasons.

I am, sir, very respectfully, your obedient servant,

R. S. BAKER,
Lieutenant-Colonel of Ordnance.

Col. H. K. CRAIG,
Ordnance Department.

[1st indorsement.]

ORDNANCE OFFICE,
November 1, 1854.

Respectfully submitted to the Secretary of War with the recommendation that, for the reasons stated by Lieutenant-Colonel Baker, he may

be authorized to delay proceeding to California until the beginning of April next.

H. K. CRAIG,
Colonel of Ordnance.

[2d indorsement.]

The ground assumed that the second officer of ordnance shall be inspector of arsenals and armories is untenable, and the supposition that an order for service on the frontier is a reflection on the professional standing of a soldier is not believed to be well founded or naturally suggested. The reasons given do not, in my opinion, justify a change of the order.

JEFF'N DAVIS,
Secretary of War.

WAR DEPARTMENT,
November 9, 1854.

[318 W. D., 1854.]

ORDNANCE OFFICE,
Washington, November 8, 1854.

SIR: I am informed that the enlisted men of ordnance who have been mustered in accordance with the eleventh paragraph of General Orders No. 16, of September 13, 1854, as entitled to the benefits of the *second section* of the act of August 4, 1854, cannot receive the bounty for re-enlistments in consequence of a doubt entertained at the pay department as to whether these men are included in the provisions of that section. I respectfully submit the question for your decision, not doubting myself that the terms of the section, and of the orders before referred to, do include the enlisted men of ordnance under the general designation "soldiers," and "soldiers in the army," therein used. These men are, by law, enlisted, paid, clothed, subsisted, disciplined, and subject to the Rules and Articles of War in like manner with the enlisted men of other corps of the army. They are, therefore, soldiers, and although excluded from the benefits of the first section of the act of August 4, 1854, because not coming under the designation, "non-commissioned officers, musicians, and privates," used in that section, they are entitled to all the benefits provided by the act for soldiers.

Respectfully, your obedient servant,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JEFF'N DAVIS,
Secretary of War.

[Indorsement.]

The enlisted men of ordnance are decided to be "soldiers" and to be entitled to the benefit of the second and third sections of the act of August 4, 1854.

JEFF'N DAVIS,
Secretary of War.

WAR DEPARTMENT,
November 23, 1854.

[14 W. D., 1855.]

WASHINGTON, D. C.,
January 9, 1855.

SIR: I would most respectfully beg leave to call the notice of the honorable Secretary of War to the fact that the act of the last session of Congress, relating to the appointment of superintendents of our national armories, made no provision for the pay of said officers; and I trust I may be permitted to suggest further, that a note from the honorable Secretary of War, to the Military Committee of Congress, giving official notice of the propriety of legislation upon the subject, will doubtless receive the immediate attention of that committee. I would also most respectfully refer the honorable Secretary to Colonel Craig, of the Ordnance Department, for any information he may desire as to the proper sum to be paid to such superintendents. With sentiments of high respect for yourself, personally,

I remain your obedient servant,

JAMES S. WHITNEY,
Superintendent National Armory, Springfield, Mass.

To the Hon. JEFFERSON DAVIS,
Secretary of War, Washington, D. C.

[Indorsement.]

Referred to the Chief of Ordnance for prompt attention.

JEFF'N DAVIS,
Secretary of War.

[Inclosure.]

WAR DEPARTMENT,
Washington, January 10, 1855.

SIR: In conformity with an act passed at the last session of Congress, civil superintendents of the national armories have been appointed, and I have the honor to recommend that a provision be introduced into the army appropriation bill, allowing them a compensation equal to the pay and commuted allowances of a major of ordnance, to be paid from the appropriation "for the national armories." The grade to which it is recommended that their compensation be assimilated is that of the ordnance officers recently in charge of the armories.

Very respectfully, your obedient servant,

JEFF'N DAVIS,
Secretary of War.

Hon. R. M. T. HUNTER,
Chairman Committee on Finance, Senate.

[62 W. D., 1855.]

WAR DEPARTMENT,
February 21, 1855.

SIR: I have the honor to acknowledge your letter of February 6, covering the Senate's resolution of the 1st, relative to the "expediency of an appropriation to be expended under the direction of the Secretary of War, by a board of officers in gunnery practice, and the preparation and use of shot, shell, and other projectiles."

In reply, I have to state that, in the opinion of this department, an appropriation for the object specified is loudly called for by the present condition of our artillery service, and that to secure a proper knowledge of this important branch of the military profession, it is indispensable that a limited amount, say twenty-five thousand dollars, should be appropriated annually for this purpose.

Of the forty-eight companies of artillery authorized by law, *eight* only are serving as such, the others being employed simply as infantry. It is indeed only at a comparatively recent period that we can be said to have actually possessed any artillery at all, though it has always nominally formed part of the army organization. From the reduction in 1821 to the year 1838, not a company of artillery was serving with its appropriate arm. In the latter year a single company of one of the regiments was thus equipped, and shortly afterwards one company of each of the three remaining regiments were placed on the same footing.

During the Mexican war a second company of light artillery per regiment was authorized, and these eight, as above stated, now constitute the entire portion of the arm that can properly be regarded as artillerists. The instruction of even this small force is limited to the serving of field pieces. With the service of the heavier calibers of guns and mortars used in sieges and in the defense of fortified places, the preparation of projectiles therefor, the construction of earthen batteries in field operations, and other matters with which the artillery soldier should be familiar, they have but little, or at least only a theoretical acquaintance. This is a kind of knowledge which can only be properly acquired by practice, and hence the necessary provision should be made for thus imparting it. Our army is small, and therefore every corps should be in the highest state of efficiency, or it will fail to answer the main object of maintaining it—that of being the nucleus upon which, in case of emergency, to raise and discipline a large force.

Much may be effected for the improvement of the artillery by the establishment of schools of instruction, on a moderate scale, at one or two convenient points on the Atlantic and Pacific coasts, and causing all the companies of that arm to pass periodically through these schools, each remaining for a term, say, of two years. An annual appropriation of twenty-five thousand dollars would, it is thought, be adequate to cover the increased expense which the proposed plan would throw on the military establishment, while it is difficult to estimate the benefits that the system would confer on the army. For this reason I heartily commend the subject to the favorable consideration of your committee. The Senate's resolution accompanying your letter is herewith returned.

I am, sir, very respectfully, your obedient servant,

JEFF'N DAVIS,
Secretary of War.

Hon. JAMES SHIELDS,
Chairman Senate Committee on Military Affairs.

[Letters to W. D., vol 11, p. 214.]

ORDNANCE OFFICE,
Washington, February 27, 1855.

SIR: Lieutenant Rodman, of the Ordnance Corps, some time ago proposed a plan for casting iron cannon hollow, and effecting the cooling of the mass from the interior, instead of from the exterior entirely, which

is the ordinary mode. His plan was then carefully considered, and was deemed worthy of trial. Experiments were accordingly authorized by the Secretary of War to test this plan so far as it could be done with that portion of the general appropriation for the service of the Ordnance Department which could be spared for the purpose. The experiments thus made are incomplete; and, in order to make a full trial of the plan, more means will be required than can be taken from the regular ordnance appropriations. I think this a matter of sufficient importance to warrant the request of a special appropriation. The recent bursting in proof of some heavy cannon, the metal of which gave evidence of great tenacity in the samples tried, seems to render investigation into the improvements in fabricating iron ordnance, and the method of treating the metal in the fabrication, desirable at any cost. I estimate that six thousand dollars will be sufficient for the trials proposed.

Respectfully, &c.,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JEFF'N DAVIS,
Secretary of War.

[Letters to W. D., vol. 11, p. 224.]

ORDNANCE OFFICE,
Washington, April 5, 1855.

SIR: I respectfully submit herewith copies of letters from the superintendent of Springfield Armory and Cyrus Buckland, the master machinist employed there, respecting the intention of the latter to take out a patent for a rifling machine of his invention. As Mr. Buckland has been in the employment and under pay of the government while devising this invention, and has had the aid of government work-shops and materials, and will require and receive further aid in this respect for perfecting his machine, the government, it seems to me, have a claim to its use. At the same time I see no objection to Mr. Buckland's taking out a patent to secure to himself whatever benefits may result from the use of his invention by private manufacturers. I do not doubt the entire good faith of Mr. Buckland's proposition; but, in order to secure the government against any claims on this account that may arise under any contingencies, I think that measures should be taken to secure, in a legal form, the use of this machine by the government free of any claim by or on account of the patentee. I respectfully request instructions as to the proper mode to be pursued in order to secure the interests of the government in this matter.

Respectfully, &c.,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JEFF'N DAVIS,
Secretary of War.

[Indorsement.]

The department has no connection with the question of application for a patent to protect Mr. Buckland against the use of any invention of his by private companies, but claims and must be admitted to have, without other compensation than that paid to its employés, the right to

unrestricted use of any machine produced in the government work-shops by the skill and labor of the persons there employed.

JEFF'N DAVIS,
Secretary of War.

WAR DEPARTMENT, *April 17, 1855.*

[Letters to W. D., vol. 11, p. 227.]

ORDNANCE OFFICE,
Washington, April 10, 1855.

SIR: After examining the seventh section of the army appropriation bill of the last session of Congress, which was intended to regulate the future distribution of arms to the militia under the law of 1808, and to correct the past allotment, I find it to be trammelled by so many difficulties as to be, in my opinion, impossible of execution. In fact, the attempt to carry out one apparently obvious intention of the section is almost certain to conflict with some other equally obvious intention of the same or other law. I am, therefore, compelled to say that, without further legislation on the subject, I cannot see how the provision of the section directing equalization of former issues can be effected; and to ask instructions with regard to the mode of apportioning their respective quotas to the States and Territories for the present year—whether according to militia returns or the representative system—and how the Territories and District of Columbia are to be regarded in either plan.

Very respectfully, &c.,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JEFF'N DAVIS,
Secretary of War.

[Indorsement.]

Issues to the Territories and to the District of Columbia will be made as directed by the President in the regulations of 30th April, 1855. To each State which has not received an equivalent to 2,000 muskets an additional number will be furnished, so as to make the supply to each State not less than that number. And thereafter issues to the States will be made in the ratio of their representation in the two houses of Congress respectively.

JEFF'N DAVIS,
Secretary of War.

WAR DEPARTMENT, *May 1, 1855.*

[119 W. D., 1855.]

ORDNANCE OFFICE,
Washington, April 10, 1855.

SIR: I respectfully submit herewith a letter from the Second Auditor, inclosing a copy of a letter from the Secretary of the Treasury, requesting the Second Comptroller to instruct the Auditor to call on me, as the head of a bureau of the War Department, to make a report to him (the Auditor) of the names and stations of the disbursing officers of this bureau,

and the dates when their respective accounts were received at this office.

A list of all the disbursing officers of this bureau was furnished to the Second Comptroller on the 22d May last, agreeably to your directions, with a monthly statement since that time of all changes in the list. A report is made quarterly by this office to the Second Auditor, of the names of all disbursing officers who have failed to render their accounts in conformity with the act of January 31, 1823, and if there has been no such failure, the fact is reported. Each account received at this office is forwarded, after examination, to the Second Auditor, with a letter showing the day of its transmittal, the name and station of the disbursing officer, and the period embraced in the account transmitted. These are all the requirements prescribed for the observance of this bureau in regard to its communications with the Treasury Department relative to disbursing officers and their accounts, by law or by regulations of the War Department, so far as I have any knowledge or information. I have no objection whatever to furnish any other information which the records of this office may contain, provided it is done with the knowledge and sanction of the head of the department, of which this office is a bureau. The point I now make is that the furnishing of information, by a bureau of the War Department, without the sanction of the Secretary of War, is unauthorized and wrong, and I shall await your instructions before I send to the Second Auditor a report, such as he requests, in accordance with the wishes of the Secretary of the Treasury, communicated through the Second Comptroller.

Respectfully, your obedient servant,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JEFF'N DAVIS,
Secretary of War.

[Indorsement.]

The view of the Chief of Ordnance as to his relations to the Secretary of War and to the accounting officers of the Treasury has my concurrence.

JEFF'N DAVIS,
Secretary of War.

WAR DEPARTMENT, *April 11, 1855.*

[82 A., 1855.]

ADJUTANT-GENERAL'S OFFICE,
Washington, April 16, 1855.

SIR: The following is the decision of the Secretary of War, dated April 14, 1855, upon your application of the 31st ultimo to be assigned to duty at the Saint Louis Arsenal according to your brevet rank :

"Assignment might give effect to brevet commission, but could not give the additional compensation referred to within; as for the latter effect, it is necessary that the officer should not only be on duty, but that he should also have a command according to his brevet grade. Command must have meant troops, not responsibilities."

I am, sir, very respectfully, your obedient servant,

S. COOPER,
Adjutant-General.

Bvt. Maj. GEO. D. RAMSAY,
Captain, Ordnance Department.

[100 A., 1855.]

(Circular.)

ADJUTANT-GENERAL'S OFFICE,
Washington, May 2, 1855.

SIR: The Secretary of War directs that in every bond hereafter executed under the authority of the War Department the places of residence of the parties be inserted.

I am, sir, very respectfully, your obedient servant,
 S. COOPER,
Adjutant-General.

The COLONEL OF ORDNANCE.

[111 A., 1855.]

WAR DEPARTMENT, ADJUTANT-GENERAL'S OFFICE,
Washington, May 21, 1855.

[General Orders No. 5.]

The following regulation has been received from the War Department, and is published for the information of all concerned:

Hereafter all *horse equipments* for the troops will be furnished by the Ordnance Department, and the materials and funds now on hand in the Quartermaster's Department, pertaining to this branch of army supplies, will be transferred accordingly with as little delay as practicable.

By order of the Secretary of War:

S. COOPER,
Adjutant-General.

COLONEL OF ORDNANCE.

[12 Q, 1855.]

FORT BROWN, TEX., *June 4, 1855.*

SIR: A soldier of this command has been detailed and employed during the past month, by order of the commanding officer, to assist the ordnance sergeant in overhauling, lacquering, &c., the large amount of ordnance stores at this post. There is no doubt of the man's having been properly and usefully employed, or of his being entitled to the usual compensation for extra labor. But the commanding officer would have had me take him up on my roll of men employed on extra duty, and had me pay him from the funds of the Quartermaster's Department. Referring him to paragraphs 1027-'8-'9 of the regulations, I gave him, as my opinion, that this was not the proper course. He has therefore desired me to refer the question to you; which I have, accordingly, the honor to do.

Very respectfully, your obedient servant,

J. P. GARESCHÉ,
First Lieut. Fourth Artillery, A. A. Q. M.

Maj. Gen. T. S. JESSUP, U. S. A.,
Quartermaster General, U. S. Army.

[1st indorsement.]

Respectfully referred to the Colonel of Ordnance. The soldier not having been employed on extra duty in the Quartermaster's Department, cannot be paid out of the appropriations made for it:

By order:

CH'S THOMAS,

Deputy Quartermaster General.

QUARTERMASTER GENERAL'S OFFICE, *June 23, 1855.*

[2d indorsement.]

There appear to be two questions involved in this case, which are respectfully submitted to the Secretary of War for decision. 1st. When soldiers are employed in cleaning, arranging, or otherwise taking care of arms, ammunition, or other ordnance stores which have been supplied to military posts and constitute a part of the armament of those posts, are their services then such as come within the provisions of the act of March 2, 1819, to regulate the pay of the army when employed on fatigue duty? The decision of the Adjutant-General on a precisely similar case is herewith inclosed. 2d. If extra compensation is to be paid for such services, under the act of 1819, by whom is it to be paid? Among the duties of the Quartermaster's Department, as defined by existing regulations, I find, in paragraph 930, "to have the direction of all soldiers drawn from their companies and employed upon constant labor for more than ten days." In the acts making appropriations for the support of the army, I find appropriated, to meet the "incidental expenses of the Quartermaster's Department," not only the "extra pay to soldiers employed under the direction of the Quartermaster's Department, in the erection of barracks, quarters, storehouses, and hospitals," but also for those employed in the construction of roads and other constant labor for periods of not less than ten days, under the act of March 2, 1819. There is no other appropriation, that I am aware of, to enable the War Department to carry into effect the provisions of that act, and if extra compensation thereunder is to be paid, through disbursing agents of the Ordnance Department, funds from that appropriation must be placed in their hands for the purpose.

H. K. CRAIG,

Colonel of Ordnance.

ORDNANCE OFFICE, *June 26, 1855.*

[3d indorsement.]

The charge, cleaning, and preservation of ordnance and ordnance stores are regarded as the appropriate duties of troops; they are not entitled to extra pay for the performance of such duty.

JEFF'N DAVIS,

Secretary of War.

WAR DEPARTMENT, *November 2, 1855.*

[Letters to W. D., vol. 11, p. 242.]

ORDNANCE OFFICE,

Washington, June 26, 1855.

SIR: I have the honor to submit the report of the proceedings and recommendations of the Ordnance Board in regard to the establishment of new models for the small-arms for our military service.

For reasons assigned by the board, which I think conclusive, a smaller caliber than that of our present musket, but greater than that of our rifle, viz, .58-inch, is proposed for all our small-arms.

Forty inches is recommended as the length of the musket-barrel; 26 inches as that of the sappers' musketoon, which will be provided with a sword-bayonet; and 10 inches for the barrel of the pistol, which barrel, being also provided with a suitable stock, will answer for a dragoon or artillery carbine, for which a range of 500 yards fits it.

One lock with magazine for fifty Maynard primers will answer for either musket or musketoon. A smaller lock with magazine for 25 primers will serve for either the pistol or artillery carbine. All the new barrels of .58 caliber to be rifled with 3 grooves, decreasing depth. The musket and musketoon to have a 6 foot twist, and the carbine and pistol barrel a twist of 4 feet. In other words, the grooves to make a revolution in a length of 6 feet for the two first, and in a length of four feet for the last. It is recommended by the board that our present rifles be enlarged in caliber to .58, but no proposition has been made for a new model of this particular arm, in the belief, it is supposed, that the sappers' musketoon may be substituted for it. Concurring, as I do, with the board, in its other recommendations with regard to a new model and the details, which I submit for your sanction, I cannot agree with it in opinion as to the propriety of ceasing the fabrication of the arm now called the rifle.

To arrange a new model of this arm in accordance with the main features of the other arms, it will only be necessary to enlarge the caliber from .54 to .58 and arrange the stock for the Maynard musket lock, the other parts remaining as at present. For such an arm we have a factory and extensive machinery, capable of turning out at least 3,000 per annum. I cannot, therefore, recommend the omission of this arm in our future fabrication.

I have the honor to submit also, for your consideration and approval, the recommendations of the Ordnance Board for certain modifications in the carriage and caisson of the mountain howitzer to render it efficient for service on the prairies.

These pieces were not originally intended for such service, but carriages for that purpose were subsequently arranged for them, on the suggestion of some artillery officers. These were afterwards modified and corrected as the defects were developed, and it was believed that carriages of a serviceable form had been obtained. The late trials made at Fort Leavenworth proved that material changes were called for. The report of these trials has further proved that these carriages were expected to undergo tests to which they should not have been submitted; for instance, their use in the transportation of the gunners. The board, therefore, in taking measures to render these carriages as serviceable as possible has very properly taken the precaution to arrange them in such manner that they cannot be exposed to unreasonable trials. Your sanction is asked for the proposed modifications.

Respectfully, &c.,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JEFF'N DAVIS,
Secretary of War.

[Indorsement.]

The caliber of .58 of an inch for all small-arms, the length of 40 inches for the musket-barrel and of 10 inches for the pistol-barrel, with the de-

tails of the lock and other component parts, are approved as recommended, and the proposed change in the gun-carriage is adopted.

The present rifle, modified by the adoption of the new caliber and primer lock, will be continued and will be issued to the sappers instead of the sappers' musketoon, the manufacture of which will be discontinued. The pistol will be provided with a movable stock, by the application of which it may be used as a carbine by light artillery and mounted troops.

JEFF'N DAVIS,
Secretary of War.

JULY 5, 1855.

[215 W. D., 1855.]

TREASURY DEPARTMENT, *July 3, 1855.*

SIR: I have the honor to transmit herewith, for your information, a copy of instructions given by me to the First Comptroller, in regard to the construction of the tenth section of the act of 1852, on the subject of the surplus fund.

I am, very respectfully,

JAMES GUTHRIE,
Secretary of the Treasury.

Hon. JEFF'N DAVIS,
Secretary of War.

[215 W. D., 1855.]

TREASURY DEPARTMENT, *June 30, 1855.*

SIR: In the construction of the tenth section of the act of 1852, in regard to the surplus fund, it is declared that in cases of appropriation for a definite object, and the same has been contracted for, and the work done or in course of being done, that the appropriation is not unexpended in the just interpretation of its provisions. There is, however, another class of cases arising under appropriations, viz, when the work has been commenced under the proper executive authority, and is in progress under such authority, in part by contract and in part by days' work, or in whole by days' work, but not completed, viz, whether the appropriation in the Treasury, or in the hands of disbursing agents, should be considered unexpended under said act, I am inclined to the conclusion that such appropriation should be considered in the just interpretation of the section *as not unexpended*, and be held and applied to the completion of the work or the attainment of the object, and you will so consider it in your report of unexpended balances to be carried to the surplus fund under said act, and when you are in doubt, make the necessary inquiry as to the condition of the work.

I am, very respectfully,

JAMES GUTHRIE,
Secretary of the Treasury.

E. WHITTLESEY, Esq.,
First Comptroller.

[204 A., 1855.]

ADJUTANT-GENERAL'S OFFICE,
Washington, September 4, 1855.

SIR: I have to inform you that upon your recommendation, and in conformity with the report of the board of officers recently convened

at Castle Island, Boston Harbor, the Secretary of War directs that the southern portion of said island be appropriated to the purposes of an ordnance wharf, gun-yard, and proving ground.

I am, sir, very respectfully, your obedient servant,
 S. COOPER,
Adjutant-General.

Col. H. K. CRAIG,
Ordnance Department.

[262 W. D., 1855.]

The act of 23d August, 1842, respecting the organization of the army and for other purposes, fixes the annual pay of military storekeepers, and provides that they shall not "hereafter receive emoluments of any kind or any compensation or commutation beyond their stipulated pay in money, except quarters actually provided for and occupied by such officers."

According to this act a military storekeeper can receive nothing more than the fixed rate of pay or salary and the quarters actually provided for and occupied by him.

Fuel is an allowance which increases the compensation of him who receives it, and is an emolument in the same sense as are quarters, forage, and servants, and the special exception of quarters in kind enforces the construction that the law prohibits to a military storekeeper all allowance other than that which was specially excepted.

Quarters in kind will be furnished to military storekeepers at permanent military stations as to officers of the army. The allowance will be the same as to a lieutenant of the army, and, as they are without military rank, they will, in the choice of quarters, be considered next after commissioned officers in accordance with the general rule, which regulates the selection of quarters by rank.

JEFF'N DAVIS,
Secretary of War.

WAR DEPARTMENT, *September 3, 1855.*

[277 W. D., 1855.]

ORDNANCE OFFICE,
Washington, September 18, 1855.

SIR: I have the honor to submit for your consideration a letter addressed to this office by military storekeeper Eckerson, stationed at the ordnance depot, Fort Vancouver, Wash., forwarded by Lieut. Col. Ripley, and a copy of another addressed by same military storekeeper to Captain Stone, at the Benicia Arsenal, with copies of the indorsement thereon of the assistant adjutant-general of the Pacific Department and of Captain Stone. Military storekeeper Eckerson is stationed at Fort Vancouver, and has charge of the ordnance depot there, having ordnance property valued at nearly \$20,000 under his charge.

It is presumable that there are no quarters, others than those occupied by the troops, attainable there; and as it is highly desirable that an officer charged with property responsibility should have office room, and personal shelter not liable to the mutations consequent upon new arrivals of troops, I would submit the question whether it would not be

advisable to authorize and instruct the commanding officer to assign for ordnance purposes accommodation for the military storekeeper for an office and quarters, as long as it may be for the interest of the service to retain the ordnance depot at that post, or until the Ordnance Department can cause buildings to be constructed for the purpose. At present the Ordnance Department has not the control of funds applicable to the erection of buildings in Oregon.

Very respectfully, your obedient servant,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JEFF'N DAVIS,
Secretary of War.

[Indorsement.]

Military storekeepers of ordnance are, by law, provided for arsenals. Depots at military posts, and ordnance supplies with moving columns of troops, should be in charge of ordnance officers. An officer of the Ordnance Corps will be detailed for duty at Fort Vancouver.

JEFF'N DAVIS,
Secretary of War.

WAR DEPARTMENT, *September 29, 1855.*

[Letters to W. D., vol. 11, p. 286.]

ORDNANCE OFFICE,
Washington, October 25, 1855.

SIR: I return herewith the estimate of this department for the next fiscal year, which was submitted to you on the 20th instant, modified and reduced.

After considering the subject of concentrating the work of constructing and reducing the number of arsenals, I have come to the conclusion that the best arrangement that can be made, in view of present and future operations, will be to recognize the following classes of arsenals, viz:

First class: Arsenals of construction.—Watervliet, Allegheny, and Washington, now established and in operation as such; Saint Louis, now an arsenal of repairs, to be converted into an arsenal of construction; Benicia, the buildings immediately to be erected to be suitable for an arsenal of deposit, and to be so arranged as to admit of its conversion hereafter into an arsenal of construction.

These will provide arsenals of construction for each of the principal parts of the country—the Atlantic, the Central, the West, and the Pacific—except the Gulf coast, in which an arsenal of this character should be established when a suitable location is determined.

Second class: Arsenals of repair.—Watertown, Frankford, and Fort Monroe, now established and in operation as such, to be used chiefly as a place for experimenting; North Carolina, now established and in operation as such. This arsenal may be converted into one of construction when required for that purpose, for which the buildings already erected are suitable. Baton Rouge, now established and in operation as such.

Third class: Arsenals of deposit.—Kennebec, Champlain, Detroit, New York, Charleston, Augusta, Mount Vernon, and Little Rock, now established and in operation as such.

Of the remaining arsenals the Rome, Pikesville, Bellona, Apalachicola, and Liberty are of little or no value as arsenals, and should be sold as soon as arrangements can be made for disposing of the stores and other movable articles of value now deposited at each. I have modified the original estimate by reducing the sums for the arsenals in accordance with the proposed arrangement.

I have, &c.,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JEFFERSON DAVIS,
Secretary of War.

[Executive Documents first session Thirty-fourth Congress, vol. 1. part 2, p. 539.]

ORDNANCE OFFICE,
Washington, October, 25, 1855.

SIR: I have the honor to submit the following report of the principal operations of the Ordnance Department during the last fiscal year, with such remarks, suggestions, and recommendations as appear to me to be called for by the interests of that branch of the military service:

FUNDS.

Amount undrawn from the Treasury on the 1st of July, 1854, as per last year's report	\$452,254 87
In hands of disbursing officers same date	170,807 90
Amount of appropriations for the fiscal year 1854-'55, including the annual appropriation for arming and equipping the militia.....	1,098,895 00
Received during the year for damages to and losses of arms, &c., in hands of troops, chargeable to them, and from all other sources not before mentioned.....	136,843 55
	<hr/> 1,858,801 32
Amount of expenditures during the year	\$1,159,601 08
Amount reverted to the surplus fund	26,298 05
In hands of disbursing officers June 30, 1855	259,727 98
Remaining in Treasury undrawn June 30, 1855.....	413,174 21
	<hr/> 1,858,801 32

The expenditures from each appropriation during the last year will be found stated hereafter as the subjects appropriated to each occur in this report. The accounts of all the disbursing officers of the Ordnance Department have been rendered as required by law and regulations, and have all been examined in this office, and transmitted to the Treasury Department for settlement, excepting those of the military storekeeper at Monterey, California, whose failure in this respect has been duly noticed.

The estimates for the next year have been carefully prepared, and are believed to include nothing more than is necessary to carry on the operations of the department with a due regard to economy, and to a provision for the wants of the public service to be supplied by this department. In consequence of the failure of Congress to appropriate funds for arsenals and ordnance depots in Texas, New Mexico, and on the North Pacific coast, the estimate made last year therefor is renewed; and attention is respectfully called to these items, and to the remarks thereto appended, explanatory of the necessity of such establishments at these points.

As the adoption of new models embracing the *Minié* principle for all small-arms, and the advantages of uniformity, as well as of superior quality of materials and workmanship to be derived from their fabrication at the national armories, render it highly expedient to enlarge the operations at these establishments, the estimate for this object has been made with a view to a greater amount of work for the next year than has been considered desirable for the last few years. It includes the usual annual amount appropriated for this purpose before the reduction in the scale of operations.

ARMAMENT OF FORTIFICATIONS.

The expenditures during the fiscal year from the appropriations for this object amount to \$258,552.93.

The principal articles procured by purchase and fabrication during the same period are as follows, viz: 54 10-inch columbiads; 68 8-inch columbiads; 24 10-inch columbiad barbette carriages; 37 8-inch columbiad barbette carriages; 5 10-inch columbiad barbette upper carriages; 6 10-inch columbiad barbette chassis; 5 8-inch columbiad barbette chassis; 10 42-pounder barbette carriages; 10 32-pounder barbette carriages; 15 32-pounder casemate carriages; 20 24-pounder barbette carriages; 6 42-pounder barbette chassis; 1,096 10-inch shot; 1,229 8-inch shot; 8,084 10-inch columbiad shells; 12,195 8-inch columbiad shells; 45,594 cubic feet of timber for sea-coast carriages, platforms, &c.

Besides the repairs of the armaments in position, which have been quite extensive at some of the forts, they have been supplied during the year with 224 heavy sea-coast and garrison guns, with their carriages, implements and equipments, and a supply of ammunition. The greater part of this armament has been sent to forts in process of construction in the harbor of San Francisco. The new fort at Key West has also received a considerable armament of heavy cannon, as well as some flank defense and field howitzers. The whole subject of the armament of fortifications has received during the year the special attention of a board of engineer, ordnance, and artillery officers, and has undergone a complete revision, whereby the number, caliber, and positions of the guns at each of the forts have been determined. The total number of pieces of ordnance required for all the fortifications is 6,459; of which 2,319 are 10 and 8 inch columbiads and sea-coast howitzers; 2,957 are sea-coast and garrison guns; 646 flank defense and block-house howitzers; 269 mortars; and 268 siege and field cannon. Of these there are on hand at the forts and arsenals 3,912, leaving to be procured 2,547 cannon for the permanent fortifications of the United States. The plan has been adopted of procuring this armament gradually by annual appropriations, and is a good one. The guns and projectiles are easily preserved at the arsenals and forts, and suffer no deterioration; while it is necessary to lay up carriage timber, and to keep it in store for seasoning, several years before it can be properly wrought into carriages. I again recommend the establishment of a national armory for the fabrication of cannon and projectiles, both for the land and sea service; and refer to the many reports on the subject, both by committees of Congress and by the executive departments, for evidence of the propriety and expediency of the measure. In my last annual report I referred to reports in detail of the measures which have been taken to improve the quality of cast-iron cannon, and to apply tests of strength and endurance more reliable than the mere powder proof, and stated my intention of arranging these reports for publication, with the requisite drawings for illustrating them.

They have since been so arranged and the drawings prepared, and they are now in press.

ORDNANCE, ORDNANCE STORES, AND SUPPLIES.

The expenditures during the fiscal year from the appropriation for this object amount to \$204,591.20. The principal articles under this designation which have been procured by purchase and by fabrication at the arsenals are as follows, viz: 39 bronze field guns of different calibers; 2 bronze field howitzers; 35 field carriages; 9 caissons; 3 traveling forges; 200 Sharp's carbines; 500 Colt's dragoon pistols; 3,884 infantry cartridge boxes; 3,030 infantry cartridge-box belts; 1,000 infantry bayonet scabbards, with frogs; 1,750 infantry gun slings; 7,894 waist belts; 12,201 cap pouches and cone picks; 761 rifle pouches; 2,957 rifle cartridge boxes; 3,727 rifle waist belts, different kinds; 1,226 sword shoulder belts; 500 saber belts for cavalry and horse artillery; 2,022 saber knots; 1,000 carbine slings and swivels; 147 32-pounder shot; 4,907 spherical case shot, different calibers; 8,158 stands of fixed ammunition for field artillery; 1,318,362 cartridges for small-arms; 1,192,500 Maynard's primers; 134,500 friction primers for cannon; 367,500 percussion caps for small-arms; 1,807 cubic feet of timber for siege and field carriages.

The quantities and kinds of arms, ammunition, and other ordnance supplies which have been issued for the United States service during the year are specified in statement C hereto annexed.

The duty of furnishing horse equipments having been transferred from the Quartermaster's to the Ordnance Department, these articles now come under the designation of ordnance stores; and the requisite amount for procuring them, which has heretofore been included in the estimates of the Quartermaster's Department, is embraced in the estimate submitted for the next year, under the head of ordnance, ordnance stores and supplies. For the purpose of testing practically the merits of different patterns of horse equipments, the cavalry regiments have been supplied with those known as Grimsley's, and also with those prepared after the pattern of Campbell—the latter having been examined and recommended for trial by a board of cavalry officers. There has not yet been time to form an opinion as to the relative merits of the different patterns, but this department will not fail to avail itself of the results of these practical trials, in order to introduce into the fabrication of the equipments such modifications as may be found advisable, to make them most durable for service and most easy for both horse and rider.

The purchase of the best breech-loading rifles having been authorized by law, provided it should be deemed advisable and proper after a fair practical test, preliminary trials of all such arms as were presented, after due notice inviting them, have been made by a board of officers, and such of them selected for practical test as gave promise of fitness for use as military weapons. A sufficient number of each kind of these arms has been ordered, to test their relative merits by use in actual service, and will be issued to the troops for that purpose as soon as they are furnished by the inventors. To compare this kind of arms with those loading at the muzzle, in respect to their fitness for the use of troops, some of the latter have been made at the national armories, and sent out for issue and trial at the same time with the patent breech-loading arms. The purchase authorized by the law has been deferred until the results of the practical tests shall determine the question as to the best breech-loading arms, and also the advisability and propriety of any purchase.

Cases not unfrequently occur of inventions and improvements made by officers, workmen, and others employed by, and under pay of the government, which are secured to their exclusive benefit by letters patent. As they very generally, if not always, have the aid of government means while devising these inventions and improvements, it seems but fair that the government should participate in the benefits to be derived from them; and that patentees, under such circumstances, should be required to make provision for allowing the free and unrestricted use, by government, of any machine or improvement produced in the government work-shops by the skill and labor of persons there employed—relying on the special action of Congress for compensation in such cases as may merit it.

* NATIONAL ARMORIES.

The expenditures at the armories during the fiscal year have been as follows, viz:

	Harper's Ferry.	Springfield.	Total.
Manufacture of arms, appendages, tools, &c., and purchase of materials for the same	\$122,925 81	\$110,757 66	\$233,683 47
Repairs and improvements	37,292 67	33,251 82	70,544 49
	160,218 48	144,009 48	304,227 96

The manufactures at Springfield comprise 8,624 percussion muskets, 580 musketoons, and 300 rifled carbines, with 47,310 appendages—consisting of extra cones, wipers, screw-drivers, ball-screws, hammers, and spring-vices. At Harper's Ferry, the manufactures comprise 7,700 percussion muskets and 2,339 percussion rifles, with 43,803 appendages—consisting of like parts with those before mentioned; 7,839 assorted components for issue to other posts for repairs of arms, and 8,452 sword bayonets, back-sights, bullet-moulds, &c., for long-range rifles. At both armories experimental arms have been made and other work done—the particulars of which will be found stated in the reports of their superintendents hereto annexed. With a view of increasing the efficiency of our small-arms and keeping pace with the great military nations of the world in their improvements, the subject was referred to the Ordnance Board in June last. A copy of the summary statement of the action of the Ordnance Board on that and other matters, with your decision and instructions thereon, is herewith furnished, marked D. In order to secure to our new system unity and the greatest possible degree of simplicity and mechanical perfection, I deemed it advisable to cause this work to be undertaken and carried out at one armory—the Springfield. Immediate steps were taken to construct the necessary models. In the execution of this work much, and, considering the great importance of extreme accuracy, satisfactory progress has been made; and it is confidently hoped that before the close of the year both the national armories will be in full operation manufacturing muskets, rifles, pistols, and pistol carbines of the new model.

The fabrication of small-arms of the old model was gradually diminished in the early part of the present year, and finally brought to a close after using such stock of materials as had been provided and prepared for them, and were not applicable to the new model. It is proposed to rifle the barrels of many of the old-model muskets of 69-inch caliber, and provide for them the elongated pointed bullet now generally used.

With a view not only of preserving for the new-model arms the high degree of mechanism which we aim to give to the working models, but to strive for approaching, as near as possible, to perfection, it is proposed to place the final inspection of all the arms made at the two national armories under the charge of an officer of the department, whose duty it will be to see that the models have been exactly copied, that none but materials of the best qualities have been used, that no process in workmanship likely to be injurious to the arms is practiced, and that the parts of arms made not only at the same, but at each armory, be capable of interchanging; and further, to insure the last desideratum, as well as other advantages of such a system of exact scrutiny, it is proposed to establish in connection with this office a depository of small-arms models, under the immediate charge of the inspecting officer, where samples of the products of the armories will be periodically received, examined, and compared.

ARMING AND EQUIPPING THE MILITIA.

The expenditures from this appropriation during the last fiscal year amount to \$179,535.27. The principal articles procured by purchase and by fabrication at the arsenals were as follows, viz: 64 bronze field guns of different calibers; 23 bronze field howitzers of different calibers; 12 prairie carriages; 6 caissons; 4,260 percussion rifles; 5,000 percussion pistols; 506 Colt's dragoon pistols; 1,000 artillery swords; 500 sword bayonets for sappers' musketoons; 9,892 infantry cartridge boxes; 8,405 infantry cartridge-box belts; 13,511 infantry waist belts; 10,926 infantry bayonet scabbards, with frogs; 10,683 gun slings; 8,365 cap pouches and cone picks; 1,824 sword shoulder belts; 3,252 rifle pouches; 1,534 rifle cartridge boxes; 2,580 pouch and flask belts; 2,000 copper powder flasks; 1,288 saber belts for cavalry and horse artillery; 460 pairs holsters; 200 saber knots; 240 carbine swivels; 860 carbine slings; 160 pistol cartridge boxes; 600 carbine cartridge boxes; 1,600 artillery sword belts.

The apportionment of arms, and the supplies furnished to the militia during the year, are shown in statements A and B, hereto annexed. In compliance with the provisions of the seventh section of the act of March 3, 1855, the distribution of arms to the several States for the year 1855 has been made according to the number of their Representatives and Senators respectively. The distribution to the Territories and the District of Columbia has been made under the regulations prescribed by the President, as required, which apportion to each a number of arms equivalent to the quota of a State having the least representation in Congress. Previously, and in addition to the several quotas thus apportioned to the States, Territories, and District of Columbia, there was assigned under the authority granted by the proviso to the section before stated, to each of them which had not received a supply equivalent to 2,000 stands of arms, a sufficient number to make the supply of each not less than that number. The mode of apportionment, as directed by the act of 1855, will effect a much more just distribution than it was found practicable to make under the provisions of the act of 1808.

This department was required to furnish an estimate of the cost of erecting an armory for the reception and preservation of the arms of the volunteers of the District of Columbia, and on the 29th June, 1854, such an estimate, amounting to the sum of \$30,000, was furnished, accompanied by a plan of such a building as was deemed suitable for that purpose; but before final action was taken in Congress on the measure, two other purposes were connected with the plan—one a depository for models, and the other a depository for national trophies—either of which

would increase the estimated cost as proposed in this office for the erection of the armory. Plans combining the three purposes have been prepared, and proposals have been invited for the erection of the building; but as the expenditure is limited to the appropriation, it is not expected that any offers of a satisfactory kind will be made.

[NOTE.—Since this was written, a bid has been accepted and a contract made for building the armory on the plan combining the three purposes; but, in order to bring the bid within the available means, it was necessary to omit from the specifications of the work required by the plan, the furniture of the building, such as gun racks and accoutrement presses, and the painting of these and the outside walls. Should it be deemed advisable to provide for the omitted work, and to carry out the proposition immediately following, in relation to the reception and arrangement of models of small-arms, under the direction of the inspector of that branch, an additional appropriation will be required.]

A favorable opportunity is presented of submitting a proposition, which I accordingly do, of enlarging the first plan and estimate submitted by this office, so as to give accommodation for the reception and arrangement of models of small-arms, under the direction of the inspecting officers of that important branch of the service.

ARSENALS AND DEPOTS.

The expenditures during the last year, from the appropriation for arsenals, amount to \$42,194 25. This sum has been applied to the repairs and preservation of public buildings, fences, wharves, &c., the erection of new and additions to old buildings, and all improvements of a permanent character. The reports, hereto appended, from the commanding officers of the principal arsenals, furnish detailed statements of the work thus done, and of the other operations at each. The number of arsenals and depots which have been in use during the year is twenty-six, including the depots at San Antonio, Texas, at Fort Union, New Mexico, and at Fort Vancouver in Washington Territory, which are mere temporary arrangements, made from the necessity of some expedient to keep supplies in those quarters, and which it is intended to replace with suitable arsenals, as mentioned in a former part of this report, when the means for so doing shall be appropriated. The ordnance depot at Saint Augustine, Florida, which was established during the war with the Semmole Indians, being no longer necessary, has been broken up, such of the stores thereat as were not required for the fort at that place have been removed to the nearest arsenal, and the military storekeeper transferred to Apalachicola Arsenal, in the same State. In consequence of the removal westward of our military operations and frontier posts, the ordnance depot at Liberty, Missouri, which was established some eighteen years ago to supply them, has become out of position and almost useless for the purpose. The opinion that has been for some time entertained was confirmed in fitting out the recent Sioux expedition, that the most suitable place for such a depot, west of Saint Louis, was at Fort Leavenworth. It is proposed, therefore, to break up the depot at Liberty, and establish one in lieu of it at Fort Leavenworth, and an ordnance officer has been directed to make the requisite preliminary inspections and examinations. An ordnance depot will also be required to supply the troops and posts on the headwaters of the Mississippi, and on our frontier to the north and west of that river and the lakes. The post of Fort Snelling, when abandoned as a station for troops, will furnish a proper

site for such a depot, which can readily be furnished, during the season of river navigation, with supplies prepared at Saint Louis arsenal. When reports are received of the inspection and examination which has been ordered in relation to the Liberty depot, the establishment of these depots will be made the subject of a special report, with such estimates and suggestions in regard to details as may be necessary. In addition to the service at arsenals and ordnance depots, officers of the Ordnance Department have been assigned to duty in the staff of the commanding generals of the military departments of Texas, of New Mexico, of the Pacific, and of the Sioux expedition. These officers have reached their respective stations, and have entered upon the duties assigned to them. Although the smaller arsenals and ordnance depots may seem to be the stations for the junior lieutenants of ordnance, it has always been the practice to post these officers at the more important arsenals, where the most active and extensive operations are carried on. This practice has been adopted for the reason that it affords the junior officers an opportunity of learning the practical duties of their profession, and becoming familiar with the construction of the various arms, implements, equipments, and accouterments of the different kinds of troops, the preparation of ammunition, and all that relates to the fabrication, inspection, packing, and preparing for issue of the various ordnance stores and supplies. It moreover avoids the isolation, which is dangerous to the habits of the young officer, of the smaller arsenals and depots, where employment but for one officer can be found, and that almost exclusively the receipt, custody, and issue of stores. Such employment is peculiarly appropriate to the military storekeepers of the department, and they have most generally been so assigned. The act of 23d August, 1842, authorizes the employment of military storekeepers at arsenals; and if they are excluded by the law, as it now stands, from service at ordnance depots, where they can be most appropriately and usefully employed, it is highly desirable for the public interest that the law should be modified. As ordnance depots, however, are, in reality, arsenals of deposit, and the term depot is ordinarily used to distinguish them from arsenals which, in addition to being depositories, are also places of construction or of repairs, it is thought that the employment of military storekeepers at the depots is not contrary to the letter of the law. There is no doubt in my mind of its being in accordance with its spirit and intent. In this connection it seems proper to refer to the inadequacy of the compensation of the military storekeepers of ordnance and of the master-armors and clerks at the national armories. At the salaries fixed by the act of August 23, 1842, all these persons are underpaid, considering the advance, since then, in the cost of living, and the extent and character of their responsibilities and duties; and an increase of twenty-five per cent. would not give them now more than a fair compensation. I recommend this increase to their present salaries.

I must again call attention to the exclusion of the enlisted men of ordnance from the benefits conferred on all other enlisted men of the army by the act of August 4, 1854, to increase the pay of the rank and file of the army; which exclusion, although manifestly not the intention of the law, results from its phraseology. As I stated in my last report, this exclusion of the enlisted ordnance men is manifestly unjust, and there is no conceivable reason for excluding this particular portion of the rank and file of the army from the benefits conferred by the law on all the rest. The attention of Congress was invited to the matter in your report, and it was suggested that an explanatory act should be passed to extend the increase of pay to all enlisted men of the army. Although

this suggestion was obviously proper, and its adoption could have no other effect than to secure the execution of the law according to its real intent, no legislation was had on the subject, and the law still continues to be executed on erroneous construction. I trust that the explanatory act before suggested will be again recommended, and that it will be passed.

Respectfully, your obedient servant,

H. K. CRAIG, *Colonel of Ordnance.*

Hon. JEFF'N DAVIS, *Secretary of War.*

SUMMARY STATEMENT OF THE ACTION OF THE ORDNANCE BOARD IN
RELATION TO NEW MODELS FOR SMALL-ARMS, ETC.

ORDNANCE OFFICE,
Washington, June 26, 1855.

SIR: I have the honor to submit the report of the proceedings and recommendations of the Ordnance Board in regard to the establishment of new models for the small-arms for our military service. For reasons assigned by the board, which I think conclusive, a smaller caliber than that of our present musket, but greater than that of our rifle, viz, 58-inch, is proposed for all our small-arms; 40 inches is recommended as the length of the musket barrel; 26 inches as that of the sapper's musketoon, which will be provided with a sword-bayonet; and 10 inches for the barrel of the pistol, which being also provided with a suitable stock, will answer for a dragoon or artillery carbine, for which a range of 500 yards fits it. One lock, with magazine for 50 Maynard primers, will answer for either musket or musketoon; a smaller lock, with magazine for 25 primers, will serve for either the pistol or artillery carbine. All the barrels of 58-inch caliber to be rifled with three grooves, decreasing depth; the musket and musketoon to have a six-foot twist, and the carbine and pistol barrel a twist of four feet; in other words, the grooves to make a revolution in a length of six feet for the two first, and in a length of four feet for the last. It is recommended by the board that our present rifles be enlarged in caliber to .58-inch, but no proposition has been made for a new model of this particular arm, in the belief it is supposed that the sapper's musketoon may be substituted for it. Concurring as I do with the board in its other recommendations with regard to a new model, and the details which I submit for your sanction, I cannot agree with it in opinion as to the propriety of ceasing the fabrication of the arm now called the rifle. To arrange a new model of this arm in accordance with the main features of the other arms, it will only be necessary to enlarge the caliber from .54 to .58, and arrange the stock for the Maynard musket-lock, the other points remaining nearly as at present. For such an arm we have a factory and extensive machinery, capable of turning out at least 3,000 per annum. I cannot, therefore, recommend the omission of this arm in our future fabrication.

I have the honor to submit, also, for your consideration and approval, the recommendation of the Ordnance Board for certain modifications in the carriage and the caisson of the mountain howitzer, to render them more efficient for service on the prairies.

Those pieces were not originally intended for such service, but carriages for that purpose were subsequently arranged for them on the suggestion of some artillery officers; these were afterwards modified and corrected as the defects were developed, and it was believed that

carriages of a serviceable form had been obtained. The late trials made at Fort Leavenworth proved that material changes were called for. The report of these trials has further proved that these carriages were expected to undergo tests to which they should not have been subjected; for instance, their use in the transportation of the gunners. The board, therefore, in taking measures to render these carriages as serviceable as possible, has very properly taken the precaution to arrange them in such manner that they cannot be exposed to unreasonable trials.

Your sanction is asked for the proposed modifications.

Very respectfully, your obedient servant,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JEFF'N DAVIS,
Secretary of War.

The caliber of .58 of an inch for all small-arms, the length of 40 inches for the musket barrel, and 10 inches for the pistol barrel, with the details of the lock and other component parts, are approved as recommended, and the proposed change in the gun-carriages is adopted.

The present rifle, modified by the adoption of the new caliber and primer-lock, will be continued, and will be issued to the sappers instead of the musketoons, the manufacture of which will be discontinued.

The pistol will be provided with a movable stock, by the application of which it may be used as a carbine by light artillery and mounted troops.

JEFF'N DAVIS,
Secretary of War.

JULY 5, 1855.

[Extracts from Annual Report of Secretary of War, for year 1855, Executive Documents, first session, Thirty-fourth Congress, vol. 1, part 2, p. 9.]

I also again invite attention to the necessity of legislative provision for the more prompt settlement of the accounts of disbursing officers, by intrusting to a single accounting officer the audit of the whole, instead of requiring disbursing officers to render accounts to two auditors, as at present. The confusion and embarrassment consequent upon the division of duties, involving injurious delays in final settlement, have heretofore been brought to the attention of Congress, and it is hoped that the evils represented will not be suffered to exist much longer.

* * * * *

For information in regard to the operations of the Ordnance Department, I refer to the accompanying report of the Colonel of Ordnance; taking occasion to renew the recommendations I have heretofore made for an appropriation for arsenals in Texas and New Mexico, and on the North Pacific coast in Oregon or Washington Territory, as may be found most advisable; also for a national armory for the fabrication of cannon and projectiles. My views in regard to the expediency of these measures, as heretofore given, remain unchanged; the reasons then advanced in support of the recommendations remain in full force, and are referred to instead of being repeated here.

At the national armories, the manufacture of smooth-bored arms has been brought to a close. New models for all small-arms have been adopted upon the rifle principle, and embracing the improvements described in my last report, and it is expected that the armories will be at work upon the new arms before the close of the year.

In the mean time, the improved ammunition, to which mainly is due the increased range recently obtained by small-arms, has been issued to troops bearing grooved arms, and its use in actual service has fully realized all the advantages that were anticipated.

Among the new models for small-arms is a pistol of increased length of barrel, furnished with an attachment to the stock which may be instantly applied, and which converts it into a carbine. Should this prove as valuable in actual service as the experiments made now indicate, no difference will be needed between the arms and equipments of dragoons and those of light cavalry; but the whole, armed with this weapon, will be rendered in celerity of movement equal to light cavalry, and in combat as efficient as heavy dragoons. It is thought that this arm will be found also well adapted to the use of sappers and miners, of men working in the trenches, and of light artillery men.

Under provisions made last year for the purchase of breech-loading rifles, many samples of this weapon have been examined, and a number of various patterns purchased and placed in the hands of troops for trial in the field. It is deemed indispensable to subject them to this test before adopting any as a standard weapon.

The distribution of arms to the militia of the several States for the current year has been made according to representation in Congress, as prescribed by the seventh section of the army appropriation act, approved March 3, 1855. In fixing the quota of the District of Columbia and the Territories, which by the act is left to the discretion of the Executive, it was determined that the District and the Territories should receive the quota of States having the least representation in Congress. That provision of the act which required this department to equalize, as far as practicable, the number of arms distributed to the States, was executed by issuing from the United States arsenals to each State and Territory which had received less than 2,000 stand, so many arms as would bring their supply up to that number.

Arrangements have been made to convert arms of the old model issued to the States when desired by them, into rifled arms of the new model, with percussion lock and primer attached—the expense of the alteration to be charged to the States and deducted from their several quotas of the appropriation for the annual supply of arms.

* * * * *

At the last session of Congress, an act was passed directing the Secretary of War to cause to be constructed, on a site to be selected by the President of the United States, a suitable building for the care and preservation of the ordnance and arms and accouterments of the volunteers and militia of the District of Columbia, and for the care and preservation of the military trophies of the revolutionary and other wars, and for the deposit of newly invented and model arms for the military service; for which purpose the sum of \$30,000 was appropriated. In the execution of this act, a site was selected, and a plan and specifications conformable to the means granted prepared, and bids for the work duly invited by public advertisement.

A contract has been entered into, but at so late a period that no progress has been made in the construction of the building.

[Extract from the President's Annual Message, December 31, 1855. Ex. Docs., first session Thirty-fourth Congress, vol. 1, part 1, p. 13.]

The recommendations heretofore made for a partial reorganization of the army are also renewed. The thorough elementary education given to those officers who commence their service with the grade of cadet

qualifies them, to a considerable extent, to perform the duties of every arm of the service : but to give the highest efficiency to artillery requires the practice and special study of many years ; and it is not, therefore, believed to be advisable to maintain, in time of peace, a larger force of that arm than can be usually employed in the duties appertaining to the service of field and siege artillery. The duties of the staff in all its various branches belong to the movements of troops, and the efficiency of an army in the field would materially depend upon the ability with which those duties are discharged. It is not, as in the case of the artillery, a specialty, but requires, also, an intimate knowledge of the duties of an officer of the line, and it is not doubted that to complete the education of an officer for either the line or the general staff, it is desirable that he shall have served in both. With this view, it was recommended on a former occasion, that the duties of the staff should be mainly performed by details from the line ; and, with conviction of the advantages which should result from such a change, it is again presented for the consideration of Congress.

[Letters to W. D., vol. 11, p. 314.]

ORDNANCE OFFICE,
Washington, November 26, 1855.

SIR : In my annual report of October 25, 1855, I took occasion to advise to a system of inspection of small arms necessary to secure and preserve for them that high degree of perfection, uniformity, and strength so necessary in military weapons, which system I was about to propose for your consideration and sanction.

The absence from our armories of the immediate control of persons accustomed to the use, as well as to a close investigation, of the various requirements of military weapons, renders the system the more needful, but the fact of there being two armories at which these weapons are made, and the great importance of identification, as well as that of securing for every article an inspection in nowise implicated in its fabrication, would make the proposed system desirable, even with military control at the armories, to separate the inspection therefrom and concentrate it.

I propose that an officer of the department be selected to take charge of this service, with whom will be deposited a duplicate model of all the arms that are to be made for the department. Quarterly, or oftener if directed, a specimen of arms manufactured at each armory shall be transmitted to him for examination and verification. Should any departure from the standards, either in form or quality, be observed, it will be for him to notify the superintendent of the armory of the fact, and if found necessary for correction, to visit the armory for that purpose. Besides these visits, he will repair to the armories twice in each year for the purpose of examining the mechanical operations, so far as they go towards affecting the strength, durability, accuracy, and efficiency of the weapons ; advising the superintendent of any departure from the standards, or any defect in workmanship or in the quality of materials employed, which he may discover, as well as of his own opinion as to the proper corrective ; this office being kept informed of his action in this as well as in other matters pertaining to his duties of inspector. Should the superintendent not coincide in opinion with the inspector as to the defects in quality, or departure from the standard, or the modes suggested by the

latter for correction, he will submit the case to this office for decision here, or farther reference to the Secretary of War.

For more detailed regulations I propose consulting with the Ordnance Board at its next session. For the present, I would suggest that an arsenal conveniently situated should be selected as the point of concentration and inspection; that at Frankford, Pa., is central and otherwise well adapted for the purpose, and its present commander, Brevet Major Hagner, by long experience, much ability, and peculiar fitness, is deemed a proper officer to take charge of the duties.

Hereafter it may be deemed for the advantage of the service to establish the depository of standards and office of inspection within this District, for which purpose, it is believed, the armory building about to be erected for the use of the District will afford sufficient and convenient accommodation, in addition to its use as an armory. Should a change be admissible in the selection of a site for the above-mentioned building its utility as a model room for this department would be greatly advanced by its location on or near Monument Square.

It may be well, in connection with the allusion here made to the difficulty of procuring for the component parts of arms made at different armories, even with the aid of standard patterns, the degree of accuracy and sameness necessary to insure interchanges, without which a vast deal of expenditure would be fruitless, to consider the propriety of so arranging operations at the two armories that, at some future and not very distant day, the practice of fabricating the same arms at each of the two armories be abandoned, and that muskets be assigned to one armory, and rifles, pistols, carbines, sabers, swords, &c., be assigned to the other. Swords and sabers have not yet been fabricated at the national armories, but there is no good reason against such a practice, and the propriety and economy of availing ourselves of the whole power and means of manufacturing, or, of what is technically termed our "plant," to its greatest capacity, is a position not to be questioned.

It is not intended, in recommending this plan of separation, that either of the armories should be deprived of the means of fabricating muskets, which being the most important of our military weapons, should not be limited in the means of accumulation short of the greatest capacity of the motive power of the armories as now applied to the fabrication of that arm, in order that the nation should not be without a full supply. Tools especially adapted to the musket can be prepared without great comparative cost, and held in reserve at the Harper's Ferry Armory without inconvenience, which armory, after a reasonable supply of the new model musket is obtained, can be devoted to the miscellaneous fabrication, whilst that at Springfield can be restricted to muskets.

It may not be out of place to state that it has been proposed by the British Ordnance Department that, after accumulating in depot about 600,000 stands of arms, in addition to those in use, the manufacture of the government armory should be limited to 30,000 per annum, which, it is supposed, will replace the usual yearly waste or expenditure, the endurance of a musket being estimated at about twelve years; but in our service, owing to circumstances which it is unnecessary here to state, that endurance is much less, and the calls for supplies will therefore be more frequent, although not probably so great in amount annually, owing to the smaller military force to be supplied.

Very respectfully, your obedient servant,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JEFF'N DAVIS,
Secretary of War.

[27 A, 1853.]

HEADQUARTERS FORT MCINTOSH, TEXAS,
October 3, 1855.

SIR: I have the honor to request to be informed whether, under the recent order, transferring horse equipments to the Ordnance Department, that of the Quartermaster is still to repair them?

I am induced to ask this because there is no provision made by the Ordnance, allowing post commanders to place men on extra duty for the purpose. Should it be determined that the Ordnance is to do it, and as each company, from the nature of the service of the rifle regiment, requires a saddler constantly with it to do the necessary repairs, I respectfully request that I may be authorized to place men on extra duty for the purpose.

Very respectfully, your obedient servant,

W. W. LORING,

Lieut. Col. and Bvt. Col. U. S. A., Commanding Post.

Maj. D. C. BUELL,

Asst. Adjt. Gen., Hd. Qrs. Dept. of Texas, San Antonio.

[1st indorsement.]

Respectfully referred to the Colonel of Ordnance for his views in the case.

S. COOPER,

Adjutant-General.

ADJUTANT-GENERAL'S OFFICE,
January 25, 1856.

[2d indorsement.]

ORDNANCE OFFICE,
January 25, 1856.

The fifty-sixth article of Ordnance Regulations, which provides for compensation of enlisted men whilst on ordnance duty, requires that such duty should be under direction of an ordnance officer, and that it should be for time not less than ten continuous days. As the order transferring the horse equipment supplies from the Quartermaster to the Ordnance Department did not of course, it is supposed, contemplate any reduction of the facilities afforded by the Quartermaster's Department for the preservation and efficiency of these equipments, it is recommended that the restriction in the above-mentioned Ordnance Regulations be waived so far as the repair of horse equipments for mounted troops is concerned, and that for such service the saddlers be credited on the muster-rolls, paid by the Pay Department, and afterward refunded to said department by the Ordnance Department. It will be proper that funds in the hands of the Quartermaster's Department, applicable to payment for such service up to end of present fiscal year, be transferred to this department, as no funds for such service have been provided.

H. K. CRAIG,

Colonel of Ordnance.

[3d indorsement.]

Respectfully submitted to the Secretary of War.

S. COOPER,

Adjutant-General.

ADJUTANT GENERAL'S OFFICE,
January 25, 1856.

Recommendation of the Colonel of Ordnance as to the compensation of soldiers employed in repairing accouterments, &c., approved.

JEFF'N DAVIS,
Secretary of War.

MARCH 11, 1856.

[Letters to W. D., vol. 11, p. 337.]

ORDNANCE OFFICE,
Washington, February 2, 1856.

SIR: I have the honor to acknowledge your reference to this office for report of General Totten's letter of the 23d ultimo, in relation to the armament for which the fortifications of the country are now prepared. In the statement appended to that letter the forts specified are reported ready.

	Pieces of artillery mounted in bar- bette.	Pieces of artillery for casemates.	Flanking pieces.	Field and siege pieces and mor- tars.	Total.
For	2, 284	822	323	363	3, 792
There are now at these forts, with suitable carriages for each piece.....	920	651	131	110	1, 812
There are at the arsenals, with suitable carriages.....	952	347	122	255	1, 676
Total pieces at the forts and arsenals, with carriages.....	1, 872	998	253	365	3, 488
There are also at the forts and arsenals, without carriages...	615	-----	71	-----	686
Total pieces at the forts and arsenals.....	2, 487	998	324	365	4, 174

The pieces for casemates and the mortars, siege, and field pieces, with their carriages, which are now available, are therefore in excess of what the statement includes; so also are the barbette and flanking pieces, but not the carriages for these, which are less by 412 barbette and 70 for flanking howitzers. But these carriages can soon be constructed, and the entire armament included in the statement can be supplied, if it be so ordered.

In my opinion such an order is inexpedient. Most of the forts mentioned as prepared for their armament are unfinished and without garrisons, and in such circumstances the armament, if supplied, cannot receive the care and attention requisite for its preservation, but will soon become damaged and useless from neglect. Past experience fully proves this, for it has occurred at all the armed forts from which the garrisons have been withdrawn; and so well established was this experience, that general orders have been more than once issued prohibiting the mounting of any more ordnance at ungarrisoned posts, and dismounting all at those with garrisons, except a few pieces, for purposes of exercise and instruction in their use. If neglected, as they must be at ungarrisoned forts, the guns, although much less liable to injury than the carriages, will become rusted and scale off in the bore; the wood work of the carriages will spring and become warped and twisted and will decay at the

joints, and the iron work will rust. Carriages not frequently attended to, if in casemates, will thus be injured by dampness, and if in barbette, by alternate exposure to dampness, heat, cold, and all the changes of weather. Pent-houses will not protect the barbette carriages from the effects of the weather, unless the coverings be also attended to and be kept over the carriages, to shield them during heavy rains or hot suns, and removed to give ventilation and dry the carriages when the weather is fine. Besides, if unattended to, they are liable to be blown off and broken by high winds. At most of the forts there are no suitable store-houses or sheds for platforms, implements, and equipments, and the suggestion to store them for preservation in this way cannot be effected until such storehouses or sheds are built. If guns and carriages are ordered to be sent to ungarrisoned posts, they will be turned over from the arsenals to the quartermasters for transportation to their respective places; on reaching there, they will be deposited by the carriers at the most convenient landing-places, and take the risk of meeting some persons who will take charge of and mount them. There is usually no one to attend to this but one sergeant, without the means of moving or handling such heavy articles; and if aid be hired to place the carriages in position and mount the guns, of what use will they be where there are none to serve them? The mere show of preparation will not justify the expense of making it, and, what is worse, it will be likely to mislead to disastrous results; for forts so supplied will be returned as having an armament of so many mounted guns, from which an estimate of their strength will be formed and probably be relied on; and when a necessity arises for their use it will be found that they have become unserviceable from remaining neglected and uncared for. We may thus be lulled into a feeling of security from a fallacious estimate of our state of efficient preparation. It will take less time to send from the arsenals a sound, serviceable armament than to repair the decayed and unserviceable at the forts. No objection exists to placing as much armament as they are prepared for in forts permanently garrisoned or where there are proper means to look after and preserve the same; but to take such articles (requiring as they do a long time for their preparation) from the arsenals where they can be properly preserved, and send them to unfinished and ungarrisoned forts, where they can neither be taken care of nor used and can only molder and decay, is, in my judgment, useless and wasteful. The suggestion to send a portable furnace for heating shot to each post, in order that there may be proper practice in firing red-hot shot, may be applicable to posts where there is anybody to practice such firing, but that is far from establishing the expediency of such a provision for each fort. They can be of no use at ungarrisoned forts and should not be sent there.

Unless, therefore, there be some urgent necessity for our assuming the best possible state of readiness for actual war, I do not think it advisable to adopt the measures suggested in General Totten's letter; which is herewith returned.

I am, &c.,

H. K. CRAIG,
Colonel of Ordnance.

HON. JEFF'N DAVIS,
Secretary of War.

[43 A, 1856.]

(Circular.)

ADJUTANT-GENERAL'S OFFICE,
Washington, February 9, 1856.

I am instructed by the Secretary of War to call your attention to the circular from this office of the 10th June, 1854, respecting the assignments of officers of staff corps and departments, and to request that you will furnish a list of such of the officers of your department who have remained continuously at the same station, or in the same section of country, for a period longer than four years, with a designation of the post or station to which they should now be assigned.

Very respectfully, your obedient servant,

S. COOPER,
Adjutant-General.

Col. H. K. CRAIG,
Ordnance Department, Washington, D. C.

[378 W. D., 1856.]

ORDNANCE OFFICE,
Santa Fé, New Mexico, March 26, 1856.

SIR: When I had the honor to report to General Garland, August last, he assigned me to duty at headquarters as chief ordnance officer in the Department of New Mexico; and to enable me to transact the business of the Ordnance Department he authorized the quartermaster to furnish me with a room and fuel for an office.

The quartermaster, Captain Easton, who supplied said allowances by order of the commanding general of this department, has received information from the Quartermaster-General that the charge for an office furnished me is inadmissible against the Quartermaster's Department, and I have, therefore, to request that you please bring the matter before the honorable Secretary of War and obtain for me the allowances named, and thus place me on a footing with other officers here for an efficient discharge of my duties.

Respectfully, I am, sir, your obedient servant,

W. A. THORNTON,
Brevet Major, United States Army.

Col. H. K. CRAIG,
United States Corps of Ordnance.

[1st indorsement.]

ORDNANCE OFFICE,
30th April, 1856.

Respectfully referred to the Secretary of War, with a recommendation that the office and fuel supplied by the quartermaster, in obedience to the orders of General Garland, be allowed. As an office room and fuel for the same is as essential to the proper performance of the duties of an ordnance officer on duty like Major Thornton, as they are to an acting assistant quartermaster or assistant commissary to whom they are allowed by the regulations for the Quartermaster's Department.

H. K. CRAIG,
Colonel of Ordnance.

[2d indorsement.]

Respectfully returned to the Secretary of War. The voucher referred to here was marked for suspension because the regulations make no provision for officers of the Ordnance Department serving at army or department headquarters, or in any other capacity than as commanders of posts. The officers of the Quartermaster's Department are the only officers of the army entitled to offices *by law*; the reason for granting offices to them is that they are constantly employed in active business with numerous individuals, and must necessarily have offices in convenient situations for the transaction of business; for the same reason, it is believed, offices were allowed *by the regulations* to commissaries, paymasters, and commanding officers. I do not pretend to judge of the necessity for an office for the principal ordnance officers in the several department commands, but as the appropriations for the Quartermaster's Department are based upon the regulations I cannot allow any payment made contrary to them to pass without the remark for suspension or disallowance.

THOS. JESSUP,
Quartermaster-General.

OCTOBER 2, 1856.

[3d indorsement.]

From what appropriation does the Colonel of Ordnance expect the allowance recommended to be drawn, and what are the duties which require an additional or extra allowance of quarters to this officer?

JEFF'N DAVIS,
Secretary of War.

WAR DEPARTMENT, *November 7, 1856.*

[Inclosure.]

ORDNANCE OFFICE,
Washington, November 12, 1856.

SIR: In answer to your indorsement on Major Thornton's letter of 26th March, 1856, submitted by me under date of 30th April, 1856, I have respectfully to state: The allowance recommended for an office, and fuel therefor, for the senior ordnance officer on duty at the headquarters of the Department of New Mexico, was expected by me to be paid from the same appropriation from which the Quartermaster's Department provides an office and fuel for officers of the Quartermaster's, Subsistence and Pay Departments when on similar duty, considering the provision as essential to the proper performance of their official duties in the one case as in the other.

The omission of officers of the Ordnance Department from the *regulations* which includes those of the other departments, arose, doubtless, from those officers being generally on duty at arsenals where offices are among the public buildings of the post.

No additional or extra allowance of quarters is requested for Major Thornton, but only an office and the requisite fuel for the same, which are stated by General Garland, in his letter of 30th September, 1856, herewith, to be as necessary, in view of his duties, for the ordnance officer as for one of any other of the military departments of the army.

The case of Captain Bradford, who is on duty at the headquarters of

the Department of Texas, precisely similar to this of Major Thornton, was also submitted for decision on the 19th May, 1856.

Respectfully, your obedient servant,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JEFF'N DAVIS,
Secretary of War.

[4th indorsement.]

Referred for remarks of the Quartermaster-General.

JEFF'N DAVIS,
Secretary of War.

NOVEMBER 14, 1856.

[5th indorsement.]

Respectfully returned to the Secretary of War. When officers of the Ordnance Department are stationed at the headquarters of a military department, where there are no public buildings to be occupied by them belonging to that department, I can perceive no good reason why they should not be allowed an office for the transaction of their public duties as well as those of other branches of the staff. They not being provided for in the regulations, this department was compelled to disallow the account.

By order:

CHAS. THOMAS,
Assistant Quartermaster-General.

QUARTERMASTER-GENERAL'S OFFICE,
Washington, November 21, 1856.

[6th indorsement.]

Returned to the Quartermaster-General to report what officers of the staff are now furnished with offices, and under what regulations they are granted.

JEFF'N DAVIS,
Secretary of War.

WAR DEPARTMENT,
November 24, 1856.

[7th indorsement.]

Respectfully returned to the Secretary of War. Offices are allowed to inspectors-general; all officers of the Quartermaster's Department; all officers of the Subsistence Department; and all officers of the Pay Department. (See paragraph 5, Regulations Quartermaster's Department.)

CHAS. THOMAS,
Assistant Quartermaster-General.

NOVEMBER 25, 1856.

[8th indorsement.]

The regulations do not allow an office in this case.

JEFF'N DAVIS,
Secretary of War.

WAR DEPARTMENT,
December 30, 1856.

ORDNANCE OFFICE,
Washington, May 6, 1856.

SIR: I have to acknowledge the reference to this office, for report, of a letter from the adjutant-general of Virginia, inclosing one addressed to him by John M. Patton, jr., captain of a volunteer company of Richmond, Va., in relation to the issue of new percussion muskets to the volunteers of that State, particularly, and to the rights of the States and the duty of the general government under the law of 1808 for arming and equipping the militia generally.

The writer of the letter is under a misapprehension, both in regard to the practice which has prevailed under the law, and to the relative quality and efficiency of the new and altered percussion arms. His premises, based on this erroneous conception of facts, are wrong, and in reasoning logically on such premises he necessarily arrives at wrong conclusions. Until a comparatively recent date, all the small-arms procured for issue to the States, under the law for arming the militia, were obtained by purchase under contract from private armories. From the time the law went into operation until the year 1848 muskets were procured from the appropriation for arming the militia in this way, and in no other. The practice up to that time was to make, under the standing annual appropriation of \$200,000, contracts for small-arms for supplying the militia, running through a series of years.

This practice was not entirely abandoned until after you came into the administration of the War Department, and when the contracts, which you found then running, had expired by completion. All or nearly all the appropriation was thus applied to procuring small-arms and their accouterments, such having been, when that system of contracts commenced, the only kind of arms and equipments which the requisitions for supplies for the States called for. Subsequently, but long before this mode of applying the appropriation (always under the direction and with the sanction of the Executive) had ceased, requisitions for arms for the militia began to include other arms than the small-arms thus provided, such as cannon with their carriages, equipments, harness, &c. These, when called for, were supplied by authority of the Executive in liquidation of the State's quotas at their equivalent in small-arms; and having been provided from other appropriations than that for arming and equipping the militia, the muskets so provided and in lieu of which they were issued remained in the United States arsenals as the representative of the money so expended from those other appropriations instead of the articles which had been actually procured thereby.

In a series of years and from an increasing demand by the States for cannon and other supplies than small-arms, which the general government did not decline to comply with, so far as its arsenals contained the means of supplying them, the muskets which had been procured by purchase from the militia appropriation accumulated on our hands, and a considerable supply of those arms so obtained yet remains. The States having had the benefit, by their own special request, of supplies derived from other appropriations, it is but equitable that they should now receive, so far as they require that kind of arms, the muskets obtained from the appropriations for arming the militia; and the 103d article of the Ordinance Regulations, under the section relating to issues to States for arming and equipping the militia accordingly prescribed: "The arms to

be issued to the States for arming the militia are made at private armories, and such arms will be issued accordingly. In cases where no arms of this kind are on hand at the depot to which the order is addressed, others may be furnished. The arms and accouterments furnished must, in all cases, be of good quality and in order for service."

The instances of issues to the States of new percussion muskets have been very few, amounting in all to but 1,200 arms, and they have been made only on special request for that particular kind of arm, and that only required for special objects. Such arms have been furnished to four States only, of which Virginia is one.

The altered muskets are of good material, finish, and model, and are for all practical purposes equally as good as the original percussion muskets, the preference for which I regard as simply a matter of fancy. No musket of a date of manufacture prior to 1821 has ever been altered to percussion, all made before that date having been condemned, on that account, as not worth alteration. There are, consequently, among the altered arms no old guns of obsolete patterns, and none "awkwardly and clumsily made." In making the alteration special attention was given to the shape and dimensions of the hammer (cock), and after examination by the Ordnance Board of the first proposed pattern altered arm, submitted for their inspection, a modification was made in it by lengthening the comb of the hammer so as to allow the arm to be carried conveniently at a support. The improvement, referred to by Captain Patton, in the bayonet of the new gun consists only of the addition of a bayonet clasp, whereby the bayonet is held more firmly to the barrel. It is an improvement, but not essential to the efficiency of the arm, nor of the great importance he attaches to it. We seldom heard of bayonets without the clasps (a recent addition) being lost, except through carelessness, &c.; as to their being wrenched off in action, I have yet to learn a single authenticated case of such an occurrence.

When the percussion lock was adopted for the military service and the use of the flint-lock was abandoned, a careful and critical inspection of all the flint-lock arms in possession of the United States was made, and all that were not of a date of manufacture and pattern prior to 1821 or unserviceable from damages of such an extent as not to be worth repairing, were retained for alteration to percussion. Most of them have been carefully and skillfully altered, and constitute the larger portion of the small-arms in our arsenals. These altered arms will be just as useful and serviceable to the States as the originally manufactured percussion arms, for the capability of the interchange of parts, which is the only material difference between the arms, is less important when they are to be used chiefly for exercise and drill, and at places where facilities for repairing and replacing their parts are readily accessible. It is and always has been the desire and aim of this department, in executing the law for arming and equipping the militia, to accommodate the States in every request they make and it has done so as far as those requests could be complied with without stretching the law to such a degree as to transcend its provisions or violate its precepts.

Some of the States have had their flint-lock arms, which were in good condition, altered to percussion. The State of Virginia, or any other State, can have the same done at the United States arsenals at the actual cost of doing the work, about ninety cents per musket, to be charged against the money value of the quota of arms which may be due to the State under the law for arming the militia. The only expenditure by the State, which will be necessary, will be the cost of sending

the arms to the United States arsenal for alteration and their return to the State arsenal.

General Richardson's letter, with its inclosure, is herewith returned.

Very respectfully, your obedient servant,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JEFF'N DAVIS,
Secretary of War.

[Letters to W. D., vol. 11, p. 381.]

ORDNANCE OFFICE,
Washington, May 22, 1856.

SIR: I have to acknowledge the reference to this office for remarks of a letter from Major Eastland, suggesting the expediency of the government's obtaining possession of the limestone caves in Kentucky, Tennessee, and Western Virginia, where saltpeter occurs naturally, and which are the chief sources of the national supply of the article to be found in this country.

It is certainly very desirable that this country should adopt any measure that may be necessary to put it out of the power of a foreign government to cut off its supplies of an article so essential to the common defense; and the questions that present themselves are, whether the measure suggested is necessary for this end, whether it will accomplish it, and what will be the best means of obtaining artificial supplies in the event of the failure of natural resources? These require a consideration of our demands and our sources of supply.

The minimum supply of gunpowder for the land service, which we should have at command for a war with any nation able to invade us is: For 5,000 cannon, average charge ten pounds, and 100 rounds, equal to 5,000,000 pounds; for 500,000 small arms, average charge, 70 grains, and 200 rounds, equal to 1,000,000 pounds; making 6,000,000 pounds in all.

To fabricate this powder it will require 4,500,000 pounds of saltpeter and 600,000 pounds of sulphur, of which we now have in our arsenals 3,363,326 of the former and 724,892 pounds of the latter, leaving to be provided about 1,200,000 pounds of saltpeter.

This seemingly large supply is proper on account of the necessity of numerous large deposits in various parts of the country, many of which may remain undisturbed at the first, second, and even the third year of war, and be available as part of the supply for the succeeding year or years, though under ordinary circumstances it will be advisable to avoid removals. Therefore, supposing the actual consumption of the original stock should amount to one-third, there will be required for renewal annually 2,000,000 pounds of powder, to make which 1,500,000 pounds of niter and 200,000 pounds of sulphur will be wanted. To supply these annual demands recourse must be had to natural formations in the country, or to artificial niter beds, or both. I am not informed as to the extent of the product by spontaneous generation of niter in this country, but as far as I am enabled to judge, I am led to doubt the propriety of relying exclusively upon the saltpeter caves of the West. It would, perhaps, be well that the whole subject of the means of supply, both natural and artificial, be submitted to the officers of the Smithsonian Institute for an opinion as to the best manner of procuring niter in case foreign supplies are cut off. As a measure of precaution I would recom-

mend the completion of the supply of niter in our arsenals by the purchase, as soon as it can be done on favorable terms, of the deficiency of 1,200,000 pounds, which will cost, it is estimated, about \$150,000.

I do not think that the possession of these caves by the government is either necessary or advisable, because I doubt not that their resources will be as well developed (if not better) by private enterprise as by government ownership, and their products can always, in case of necessity, be obtained for government use. In the event of our having to resort to artificial means for procuring adequate supplies, then the assistance of the government may be necessary to incite and foster such undertakings to the requisite extent.

Major Eastland's letter is returned herewith.

I am, &c.,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JEFF'N DAVIS,
Secretary of War.

[Letters to W. D., vol. 11, p. 383.]

ORDNANCE OFFICE,
Washington, May 27, 1856.

SIR: In previous reports I have mentioned that the superiority in range and accuracy of fire of elongated balls fired from grooved barrels had induced investigations in relation both to the most advantageous shape of the ball and the best mode of grooving the arm; that some experiments in regard to both these points had then been made, which it was intended to prosecute further; that they were believed to be of sufficient value and interest to warrant their publication for general distribution; and that they would be prepared and presented with that view. These experiments, including many interesting points in relation to small arms of different kinds, have been completed and reports of the same prepared, the character of which is indicated by the inclosed table of contents. The reports will make a printed volume of about 300 octavo pages, with a few simple illustrations, the engraving of which will involve but very little cost. I recommend that the work be printed for the use of the army, and for distribution to the militia, not doubting that it will afford information, both useful and interesting, to both.

There being no fund at the disposal of this department applicable to defraying the expenses of printing and binding the work, it will have to be done from other means, applicable, or to be made applicable, to the purpose.

Respectfully, &c.,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JEFF'N DAVIS,
Secretary of War.

[Indorsement.]

Approved:

JEFF'N DAVIS,
Secretary of War.

MAY 31, 1856.

ORDNANCE OFFICE,
Washington, August 13, 1856.

SIR: In answer to the letter of the Senate military committee of the 24th ultimo, referred to this office for report and received yesterday, I have the honor to submit an estimate of the cost of furnishing the whole body of the militia of the United States with arms, accouterments, and horse equipments. The basis of this estimate is the aggregate militia force of the United States, as officially reported by the Adjutant-General, according to the latest returns received at his office. As the different arms, of which this aggregate force is composed, are not stated, I have assumed a division of it, in making up the estimate, as follows: The allowance of artillery is fixed at the minimum, one piece to every thousand men. The cavalry arm is assumed at one-tenth of the whole force, and of the remainder, two-thirds are assumed to be infantry, and one-third riflemen. This assumed division, whether agreeing with that which actually exists or not, is not so far from it as to affect materially the amount of the estimate. I have included in it only the actual cost of the arms, accouterments, and horse equipments, amounting to \$47,840,377.13, and if the contingent expenses of inspecting, receiving, and issuing be added, the amount will not fall short, in round numbers, of fifty millions of dollars. Add to this the Quartermaster-General's estimate of the cost of furnishing camp and garrison equipage (\$16,000,000), and the direct answer to the committee's inquiry, "What amount of money will be necessary to carry out the provisions of the bill," is sixty-six millions of dollars.

The committee's letter also inquires concerning the necessity and propriety of the measure, in answer to which I respectfully report: I am not aware of any necessity for supplying so large an amount of war material in the time specified in the bill, nor for increasing the *kinds* of military supplies already authorized by the law of 1808, for arming and equipping the militia. It may be advisable to increase the quantity of these supplies, in consideration of the increase of population, and consequently of the militia force, since the law was passed; and this would only require an increase of the standing annual appropriation. But most, if not all, of the other supplies mentioned in the bill are articles of a perishable nature, deteriorating rapidly even when not in service, or readily convertible to use in the private pursuits of life; making it difficult if not impossible for the State authorities to preserve them in store, or secure a proper degree of responsibility for them when issued for service. Judging from past experience the conclusion is inevitable that the supplies, if furnished as proposed in the bill, will not be properly preserved or accounted for, and in a short time very few of them will be ready and fit for war service. The means proposed in the bill for securing and enforcing proper care and accountability for them, besides their liability to cause a conflict with the State authorities in their execution, will not, in my opinion, prove practically effective in attaining the proposed objects. The letter of the military committee, with the accompanying papers, is returned herewith.

Respectfully, &c.,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JEFF'N DAVIS,
Secretary of War.

Approximate estimate of the cost of furnishing the whole body of the militia of the United States with arms and accouterments.

314 field batteries complete, at \$9,586 each	\$3, 010, 004 00
3,768 artillery musketoons, \$10.37	39, 074 16
3,768 artillery musketoon accouterments, \$2.72 per set	10, 248 96
31,400 artillery sabers, belts, and knots, \$7.22	226, 708 00
188,397 carbines, with appendages, \$17.50 each	3, 296, 947 50
188,397 percussion pistols and appendages, \$7 each	1, 318, 779 00
188,397 cavalry sabers, \$7.50 each	1, 412, 977 50
188,397 sets of cavalry accouterments, \$5.51 per set	1, 038, 067 47
188,397 sets of horse equipments, \$35 per set	6, 593, 895 00
1,130,382 muskets, with appendages, \$13.25	14, 977, 561 50
1,130,382 sets of infantry accouterments, \$3.65 per set	4, 125, 894 30
535,473 rifles and appendages, \$12.88 each	6, 896, 892 24
535,473 sword bayonets, \$3.87 each	2, 072, 280 51
535,473 sets of rifle accouterments, \$3.65 per set	1, 943, 766 99
9,420 cavalry officers' sabers, \$20 each	188, 400 00
12,835 general, field, and staff officers' swords, \$20 each	256, 700 00
28,812 foot officers' swords, \$15 each	432, 180 00
Total	47, 840, 377 13

H. K. CRAIG,
Colonel of Ordnance.

ORDNANCE OFFICE,
August 13, 1856.

[Letters to W. D., vol. 11, p. 404.]

ORDNANCE OFFICE,
Washington, August 21, 1856.

SIR: In answer to the letter from the Navy Department of the 19th instant, I have the honor to report that one hundred arms, of the kind commonly called "Minié rifles," with the necessary accouterments therefor, may be supplied by this department to the Marine Corps on the following conditions: The cost of transportation from the arsenal whence they are issued to the Marine Barracks to be paid by the quartermaster of the Marine Corps, and the cost of the accouterments, and of the alterations and additions to the arms to convert them into "Minié rifles," to be refunded to the special appropriation for the service of the Ordnance Department of the army, from which that cost was defrayed. The cost of the original fabrication of the arms having been paid from the appropriation for "manufacture of arms at the national armories," not for the special service of the army, but for any branch of the national service, will not be charged. Before the issue is ordered the particular kind of arm desired by General Henderson should be designated, as the term "Minié rifle" applies equally to three kinds of arms which may be supplied, viz, the rifle with the sword-bayonet, the rifled musket with the original percussion lock, and the rifled musket, altered from the flint-lock to the percussion-primer lock, Maynard's. The first is the arm of *riflemen*, and, if furnished to the Marine Corps, will require special accouterments and a change of the drill. The other two are suitable for the present drill of the corps, and require no change of their accouterments. All are rifles, and are intended for use with the elongated expanding ball, which makes any rifle what is commonly known as the

"Minié rifle," the name applying to the ammunition and not to the arm.

The letter from the Navy Department is returned herewith.

Respectfully, &c.,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JEFF'N DAVIS,
Secretary of War.

P. S.—The bayonets of the rifled muskets *with percussion primer locks* will not interchange, but each bayonet fits the particular arm for which it has a corresponding mark.

H. K. C.

[27 W. D., 1856.]

Request of Bvt. Maj. Geo. D. Ramsey for and additional allowance of fuel at Saint Louis Arsenal.

[1st indorsement.]

ORDNANCE OFFICE, *February 1, 1856.*

Respectfully referred to the Secretary of War, as requested by Major Ramsey.

H. K. CRAIG,
Colonel of Ordnance.

[2d indorsement.]

Respectfully returned to the Secretary of War. The allowance of fuel is amply sufficient for the quarters to which officers are entitled; it is at least double the allowance in any of the European armies. For many years after I joined the army, the 40° of latitude was the parallel above which an additional allowance was made, and then the winter and summer allowances were of equal periods; now the 39° is substituted for the 40°, and the summer period is reduced to five months and the winter extended to seven months. Before the increase above mentioned the allowance was sufficient, not for the extensive accommodations provided for ordnance officers, but for the allowance of quarters to which the officers of all arms are entitled. If we go on increasing allowances the expenses of the military establishment will become so onerous that the nation will break it up. To maintain the army it must have the support of public opinion, and if the expenses be allowed to increase materially, except by direct legislation, that support will be lost. Believing the allowances to be, at present, as much as is necessary for all purposes connected with the public service, I cannot advise the alteration proposed by Major Ramsey.

THO. S. JESUP,
Quartermaster-General.

QUARTERMASTER-GENERAL'S OFFICE, *September 27, 1856.*

[3d indorsement.]

The views of the Quartermaster-General are concurred in.

JEFF'N DAVIS,
Secretary of War.

OCTOBER 3, 1856.

[Letters to W. D., vol. 11, p. 417.]

ORDNANCE OFFICE,
Washington, October 10, 1856.

SIR: The papers left at the War Department by General Allison, adjutant-general of Tennessee, relating to a claim of the State for arms furnished from the State arsenal to volunteers in the United States service during the Mexican war and not returned to the State, which papers were referred to this office, have been examined in connection with such of the records of the office as furnish any information on the subject.

That examination seems to establish the following facts, viz: The State of Tennessee issued to volunteers, called into the service of the United States during the Mexican war, 1,086 muskets and accouterments; 179 Hall's rifles and accouterments; 10 rifles and accouterments; and the volunteers thus supplied by the State did not call for or receive their arms and accouterments from the United States arsenals, as they had a right to do by the regulations for arming militia called into the United States service. When mustered out of service, these volunteers turned in the following arms and accouterments, which were sent to the United States arsenal at Baton Rouge: 291 muskets; 280 cartridge-boxes; 275 cartridge-box belts; 238 bayonet-scarbards; 186 bayonet-scarbard belts; 29 waist-belts; 9 brushes and picks; 8 gun slings.

What became of the rest of their arms and accouterments cannot be ascertained by me, inasmuch as the State arms were not a subject for accountability to this office, and no returns of them were received here. There is no evidence that any portion of them was returned to the State, and the claim states that none were so returned. If these volunteers were held to the same accountability, while in the United States service, for their arms and accouterments as those who were armed and equipped by the general government, all deficiencies not resulting from unavoidable loss or accident in service were charged against their pay. Whether any distinction was made in this respect between volunteers armed and equipped by the United States and these Tennessee volunteers, I have not the means of ascertaining.

The entire evidence that can be found bearing on the subject seems to present an equitable claim by the State of Tennessee on the United States for the return to the State arsenal at Nashville of the same number and kind of arms and accouterments as were furnished to the volunteers in the United States service by the State. The case, however, is one of equity solely, and the executive officers have no authority to adjust it. That will require legislative action, which, in my opinion, may with propriety be recommended. The papers left by General Allison are returned herewith.

Very respectfully, &c.,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JEFF'N DAVIS,
Secretary of War.

[Ex. Docs. 3d session 34th Cong., vol. 1, part 2, page 373.]

ORDNANCE OFFICE,
Washington, November 11, 1856.

SIR: The following report of the principal operations of the Ordnance Department during the last fiscal year, with such remarks, suggestions,

and recommendations as are deemed appropriate to the respective subjects mentioned in it, is respectfully submitted :

FUNDS.

Amount undrawn from the Treasury July 1, 1855	\$413, 174 21
In hands of disbursing officers, same date.....	259, 727 98
Amount of appropriations for the fiscal year 1855-56	1, 360, 553 48
Received during the year for damages to arms and from other sources.....	29, 026 56
	<hr/>
	2, 062, 482 23
	<hr/>
Amount of expenditures during the year	\$1, 420, 077 63
In hands of disbursing officers, June 30, 1856.....	93, 161 33
Remaining in the Treasury undrawn, June 30, 1856.....	549, 253 27
	<hr/>
	2, 062, 482 23

The amount expended during the year from each appropriation will be stated under the appropriate heads as they occur hereafter. The disbursing officers of the department have been regular in the rendition of their accounts with the proper vouchers, which have been promptly examined and transmitted to the accounting officers of the Treasury for settlement. I have but one failure to report in this respect, which is that of a military storekeeper in California, whose liabilities are very small. His delinquency was made the subject of special inquiry by the senior ordnance officer in that department, which resulted in finding palliating circumstances in reference to the past, with assurances of greater attention and regularity hereafter.

The estimates for the next year have been carefully prepared, and are believed to include nothing which is not requisite for carrying on the regular operations of the department, during that time, judiciously and economically. The remarks annexed to each item are referred to for more full explanation in regard to each.

ARMAMENT OF FORTIFICATIONS.

There has been expended from this appropriation, during the fiscal year, the sum of \$164,967 09, and the principal articles procured by purchase and fabrication during the same time have been as follows, viz : 24 ten-inch columbiads; 63 eight inch columbiads; 70 forty-two-pounder guns; 1 eighteen-pounder gun; 1 eight-inch howitzer; 30 twenty-four-pounder coehorns; 10 eight-inch columbiad barbette carriages; 20 forty-two-pounder casemate carriages; 8 thirty-two-pounder barbette carriages; 10 forty-two-pounder upper barbette carriages; 3 thirty-two-pounder barbette chasses; 4 mortar beds; 11 furnaces for hot shot; 1,006 ten and eight inch shot; 7,678 forty-two-pounder shot; 10,331 ten and eight inch shells; 220 thirty-two-pounder shells; 165 thirty-two-pounder spherical case shot; 525 stands of ammunition for siege and garrison service.

The armaments of the forts have been also repaired and kept in order, and they have been supplied during the year with 75 heavy seacoast and garrison guns, and with 20,677 shot and shells. The plan which has been adopted, of providing the armament for our forts gradually, is a good one; but the means which have been annually appropriated to effect this object are so small as to render progress in the work entirely too slow. At the rate of appropriations for many years past, it will require some forty years to provide a complete armament for the forts under construction and authorized to be constructed. To supply the entire armament which all these forts are designed to mount when

completed, will require about 2,300 pieces of artillery and 3,000 gun-carriages, in addition to those on hand at the forts and arsenals, the cost of which, with the implements and equipments, requisite for their use, will be about three millions of dollars. I estimate that to furnish each piece of ordnance at all the forts with one hundred rounds of ammunition will require, in addition to the supplies on hand, about 4,250,000 pounds of cannon powder, and 250,000 projectiles of different kinds and calibers, the cost of which, will be somewhat less than two millions of dollars. From this will be seen at once the propriety of a more rapid progress in preparing the armament and procuring the supplies than the plan heretofore pursued, of providing them gradually by small annual appropriations, will permit. The proper measures to be taken to place the forts, as respects their armaments, within a reasonable time in a proper condition to repel attacks are, to appropriate more liberally for the armament of fortifications, and for increasing the capacity of the arsenals for storing timber or other material for gun-carriages and for fabricating these carriages, with their implements and equipments, and also to establish a national manufactory of cannon and projectiles.

There is another measure which should be adopted for the preservation of the armament, and without which it will, if sent to the forts, soon become unserviceable. That is, the erection at each fort of a sufficient storehouse for the gun-carriages it will require for its armament, with their implements and equipments, to be used solely for that purpose. Most of our forts are usually without garrisons, and at such the armament cannot receive the constant care and attention necessary for its preservation, if mounted. The carriages and implements, unless properly stored and protected from the effects of weather and of the dampness of casemates will soon warp or moulder and decay, and may be found unserviceable on an emergency requiring their use. Besides the disastrous consequences that may thus result the erection of proper storehouses for the preservation of the carriages requiring, as they do, considerable time and a large outlay for their construction is a measure of economy. The difficulty of keeping wooden carriages in a serviceable condition at ungarrisoned posts has led to inquiry as to the propriety of making them of iron. It must, however, be determined by actual experiment, and if that be successful the iron carriages, although they do not absolutely require such housing, will be better preserved by it; while the implements and equipments, which are very numerous, for the complete service of a fort's batteries must be sheltered. The reports of experiments instituted and carried out by this department, with a view to improve the quality of cast-iron cannon and to apply tests of strength and endurance more reliable than the mere powder proof, have been published during the year. It is believed that they contain much reliable information interesting and useful to all who are engaged in iron manufactories, and particularly to cannon-founders. The information thus acquired could be much more advantageously used for the interest of the government at a national foundry, which would also afford means and facilities for further investigations and improvements in this respect.

ORDNANCE, ORDNANCE STORES AND SUPPLIES.

The expenditures during the fiscal year from this appropriation amount to \$215,426 71, and the principal articles procured by purchase and by fabrication at the arsenals are as follows, viz: 1 thirty-two-pounder bronze howitzer; 166 field carriages, caissons, and traveling forges; 3,859 sets of infantry accouterments; 1,027 sets of rifle accouterments;

2,366 sword bayonets and scabbards; 300 sword shoulder-belts; 5,138 pistol cartridge-boxes and pouches; 5,279 saber-belts for cavalry and horse artillery; 300 foot artillery sword-belts; 6,017 carbine-slings; 3,779 carbine swivels; 4,225 saber-knots; 3,381 belt holsters; 2,616 sets of horse equipments; 1,000 twelve-pounder shells; 4,544 pounds of canister shot, different calibers; 5,728 rounds of fixed ammunition for field artillery; 3,227,400 cartridges for small arms; 5,739,500 percussion caps; 267,221 friction primers; 1,150,000 Maynard's primers; 1,500 lock and breech pins.

The arms, equipments, ammunition, and other ordnance supplies which have been issued for the United States service during the year, are specified in statement C, hereto annexed.

The reports which have been received, of the relative merits of the different kinds of horse equipments which have been tried in the mounted service, indicate the necessity of extensive modifications of all the patterns which have been devised for the purpose before adopting a model. The attention of the department is given to this subject and it will avail itself of the practical experience of officers of the mounted regiments, as well as of its own resources, for devising the best model and for fabricating, according to it, of the best materials. A reduction of weight, as well as of cost, in these equipments are points of primary importance, which, it is thought, may be attained to a great degree, and which will be specially considered. The practical test of breech-loading arms, undertaken to ascertain the relative merits of the various arms of this description, and their fitness or unfitness for military service has made but slow progress and has reached as yet no definite result. This is owing to the failure of the inventors and patentees to deliver the arms ordered for trial at as early a time as was agreed upon and some of them have not yet been received. The trials cannot be completed, nor can the question of the relative effectiveness and fitness of these arms for military use be determined, and the "best breech-loading rifle" be ascertained, until all shall have been delivered and put in service a sufficient length of time to allow of thorough practical tests. The alteration of flint-lock arms of the model of 1822 to self-priming rifled muskets has been carried on as fast as the parts supplied for the purpose would permit. Some of these arms have been put in the hands of the regular troops for trial. The results so far as reported are favorable and there seems to be no room for doubt that all serviceable flint-lock muskets may, by rifling and percussioning, be converted into good and efficient long-range arms, such as are commonly called "Minié rifles."

NATIONAL ARMORIES.

The expenditures at the armories during the fiscal year have been as follows, viz:

	Harper's Ferry Armory.	Springfield Armory.	Total.
Manufacture of arms, appendages, tools, &c., and purchase of materials for the same.....	\$123, 376 01	\$139, 872 68	\$263, 248 69
For repairs, improvements, and new machinery, in- cluding buildings, &c.....	39, 858 00	141, 757 51	181, 615 51
	163, 234 01	281, 630 19	444, 864 20

The work done at these establishments is stated in detail in the reports, hereto annexed, of their respective superintendents. It has been

applied chiefly to the completion and perfecting of model rifled self-priming arms with accurate gauges to insure the entire uniformity of each of their parts. The armories have also been engaged in rifling and sighting for long ranges the smooth-bored arms of former models, and in preparing the requisite tools, machinery, and fixtures for the fabrication of the new model, of which many of the components have also been forged. It is expected that finished arms of this model will be delivered in January next, after which the work can be carried on at the rate of one thousand per month at each armory.

In my last report I stated that experiments had been made at the Springfield Armory which had resulted in the adoption of an entire new set of models for small arms, and a mode of altering all the old muskets on hand at our armories and arsenals. The great care necessary to secure perfect uniformity and accuracy in the construction of the models and gauges for the new rifle-musket delayed their completion until last spring. During the process of their construction, the officer who had been placed in charge of it made extended trials with specimens of the new arms, the results of which confirm the favorable opinion of their merits which led to their adoption for the service. Further trials have also been made with the old altered muskets, not only at the armories and arsenals, but in the hands of the troops, which show a range, accuracy, and force of penetration for this arm not inferior to any other military weapon intended for the use of infantry. The fire of three round balls of a size sufficiently reduced to allow them to be dropped into their places without the use of the ramrod has been found to afford the means of throwing a large number of projectiles at a distance of 200 yards with accuracy, rapidity, and force, and without injury to the rifle barrel. Against masses of cavalry the effect of this species of fire may be increased to 250 or 300 yards. Experiments have also been made which show that the force and accuracy of the pistol-carbine may be increased by increasing the length of its barrel from ten to twelve inches, and that, too, without rendering it inconvenient to handle as a common holster pistol. Its fire is effective, both in force and accuracy, at 500 yards. A number of these arms have been made at the Springfield Armory, and are now ready for issue to the mounted troops, with the expectation that their utility for this branch of the service will be verified by actual trials in the field. A report of all the important experiments which have been made by this department since 1852, touching improvements in small arms, has been prepared and published by your authority and is now being distributed for the information of the army and militia.

ARMING AND EQUIPPING THE MILITIA.

The expenditures from this appropriation for the fiscal year amount to \$144,842.59. The principal articles procured, on this account, by purchase and by fabrication at the arsenals, were as follows, viz: 14 field carriages; 1,100 percussion rifles; 316 Colt's pistols; 2,000 cavalry sabers; 1,000 horse-artillery sabers; 750 non-commissioned officers' swords; 500 musicians' swords; 33 sword bayonets for musketoons; 9,932 infantry cartridge-boxes; 6,203 infantry cartridge-box belts; 7,942 bayonet scabbards and frogs; 8,639 gun slings; 12,160 waist belts; 4,185 cap pouches; 1,050 rifle cartridge-boxes; 1,351 rifle pouches; 1,250 rifle pouch belts; 548 rifle sword bayonet scabbards; 1,924 carbine and pistol cartridge-boxes; 2,300 saber belts for cavalry and horse artillery; 480 saber knots; 2,527 pairs of holsters; 450 sword shoulder belts.

The apportionment of arms to the several States and Territories and the supplies furnished to the militia during the year, on requisitions of their governors, are shown in the statements A and B, hereto annexed.

The States and Territories probably have in their possession a large number of flint-lock arms which they have received from time to time from the general government under the law of arming and equipping the whole body of the militia of the United States. Most of these arms are susceptible of alteration to rifled long-range arms with percussion locks, at an expense of about three dollars each, whereby they will be converted into as effective arms as are to be found in any service. The work necessary to effect the alteration can be done by the government at its arsenals and armories much better, and more uniformly and cheaply, than it is possible for the States to do it. Indeed, it is doubtful if they could do it at all, save at a cost greater than the value of the arms when altered, as each would have to incur expenses in the requisite preparations which would suffice for the alteration of the whole.

The work on the armory for the militia of the District of Columbia has been carried on during the year, and everything promises its speedy erection, according to the terms of the contract, of materials of the best description, put together in a workmanlike manner. The building will then require some interior furnishing and fixtures, such as gun-racks and accouterment presses, which, with painting, grading, draining, and inclosing the lot, and everything requisite to make it suitable for immediate use, will cost, according to a detailed estimate which has been prepared, seven thousand eight hundred and twenty-seven dollars.

ARSENALS AND DEPOTS.

The number of arsenals and depots which have been in use during the year is twenty-four, including the depots in Texas, in New Mexico, and in Washington Territory. These last, which are only temporary expedients for storing and sheltering the supplies necessary to be kept in those quarters, are to be replaced by small arsenals of deposit with suitable permanent buildings for storage and shops for slight repairs, for which appropriations were made at the last session. It has not been possible to commence the erection of any of these buildings since the appropriation was made, nor can anything be done towards the construction of the arsenals until valid titles to the sites are obtained. The requisite preliminary measures for this purpose have been taken. The expenditures from the appropriation for arsenals during the fiscal year amounted to \$45,493.77, which sum was applied to repairs and preservation of public buildings, fences, wharves, &c., the erection of new and additions to old buildings, and all improvements of a permanent character. The reports of the commanding officers of arsenals, hereto appended, exhibit in detail the work thus done, and the other principal operations at each. The estimates under this head for the next year state in detail the objects it is intended to effect. They contemplate additional buildings and other facilities for doing work at the larger arsenals only, confining those at the arsenals of deposit to the necessary repairs for keeping them in good order. The greater part of the estimate is for the erection of storehouses and workshops at the Benicia Arsenal, the only arsenal on the Pacific coast where it is contemplated to provide means for fabrication.

I deem it proper to repeat the recommendation in my last annual report, of an increase of the compensation of military storekeepers of

ordnance, and of the master armorers and clerks of the national armories. These persons all receive now the salaries fixed by the act of August 23, 1842, at that time scarcely adequate to their support. Considering the advance since then in the cost of living, and in the rates of compensation for services of all public employés (except those in the services pertaining to the military departments of the government), they are underpaid, and an increase of twenty-five or thirty per cent. would not give them now more than a fair compensation for what the government requires and receives from them.

In every report I have made since the passage of the act of August 4, 1854, to increase the pay of the rank and file of the army, I have called attention to the exclusion of the enlisted men of ordnance from the benefits conferred on all other enlisted men of the army by that act. This exclusion, although manifestly not the intention of the law, results from its phraseology: the terms "non-commissioned officers, musicians, and privates," used in the law, being construed not to apply to ordnance men, who are enlisted and mustered as laborers, artificers, armorers, and blacksmiths. It is evidently unjust, and there is no conceivable good ground for making this discrimination between the soldiers of ordnance and those of other corps of the army. The attention of Congress has been called to the matter by you, and an explanatory act recommended, extending the increase of pay granted by the act 1854 to the enlisted men of ordnance as well as the other soldiers of the army. I trust that such an act will soon be passed.

H. K. CRAIG,
Colonel of Ordnance.

Hon. JEFFERSON DAVIS,
Secretary of War.

[Extract from Annual Report of Secretary of War for 1856. Ex. Doc. 3d session, 34th Cong., vol. 1, part 2, p. 11.]

To simplify the accounts of disbursements in the military service and to expedite their final settlement, I have heretofore repeatedly recommended that instead of being arbitrarily divided, as they now are, between two auditors they should be concentrated at the office of one, and I have to renew the recommendation that an accountant be authorized for the War Department as the means of securing uniformity in decisions upon that class of questions which, resting upon military usage and the records of the War Office, are necessarily referred to it and decided by the Secretary of War according to the nature of the case.

* * * * *

The great improvements recently made in small-arms whereby their effective range has been much increased, must, to a considerable extent, supersede the necessity for cannon of small caliber. This consideration, added to the heavy expense attending the maintenance of light batteries in a state of efficiency, has induced the Department to limit the number of such batteries to four; and for the purpose of instruction in the use of garrison, seacoast, and siege guns, to assemble one company from each regiment of artillery at the fortification best adapted to experimental firing according to the various modes which the contingencies of active service may demand.

The report of the Colonel of Ordnance is referred to for detailed information in regard to the operations of that branch of the military service

under his charge. With the limited means furnished by the appropriations for the year progress in providing armament for the fortifications in the manufacturing of small-arms of the improved models, and in applying the recent improvements to those of the old model has necessarily been slow. The fortifications now under construction, and those authorized to be constructed, will require for their armament about 23,000 pieces of ordnance and 3,000 gun-carriages in addition to those at the forts and arsenals. To procure these and to supply each mounted piece at the forts with one hundred rounds of ammunition will, at the usual rate of appropriations, require a period of forty years; but many fortifications not yet commenced or even projected will no doubt be built within that period, so that at the end of the time stated our armament will not probably be more complete than it is at present. It requires no argument to show that fortifications without guns are worse than useless, and guns will have only a part of their value without fortifications. It is therefore evident that armament should keep pace with fortifications and the latter progress with the necessities for defense. I recommend more liberal appropriations for this object and have estimated accordingly.

The use of wrought iron, instead of wood, as a material for gun-carriages has engaged the attention of the Ordnance Department. The durability of this material for gun-carriages, especially for a country which may expect to enjoy such long periods of peace that wooden ones would decay before being required for use, justifies their trial under all circumstances of exposure, and I have directed the proper experiments to be made for determining the fitness of wrought-iron for the purpose.

The subject of mounting, in certain positions covering narrow channels, guns of large caliber, to throw hollow projectiles of great diameter and weight containing sufficient charges of powder to render a single one destructive to any vessel into which it may penetrate, has been examined in connection with the relative efficiency and destructiveness of such guns and those of the largest of our adopted calibers. Experiment can alone determine whether it is advisable or not to adopt the proposed increase of caliber and to what extent, and special estimates will be made for the purpose.

In order to simplify our field artillery and at the same time to increase the range and power of that arm, preparation is in progress for trial by the light artillery companies of four batteries of light twelve-pounders. These guns are to be made to take the same ammunition as our present twelve-pounders, and also to be light enough to be readily managed under the circumstances of service where six-pounder batteries are now used. It is intended to have, for general use, but the one piece for field artillery; and for positions requiring artillery where a gun of that weight cannot be carried, to use the twelve-pounder mountain howitzer.

The experiments on gun-metal, which have been carried on by the Ordnance Department for some years past, and the results of which have recently been published, have done much to improve the quality of our cannon, and the work contains valuable information on the subject of which it treats. It is quoted and favorably noticed in a late English work "on the physical conditions involved in the construction of artillery, and causes of the destruction of cannon in service." One of the author's remarks, referring to our ordnance reports, is, that "the United States ordnance has really done more to advance, *experimentally*, the art of manufacturing cannon than all the European services together." These experiments have been directed to the determination of the ultimate cohesion of gun-metal, and did not take into consideration the injury

sustained by cannon from the continued repetition of the ordinary strains of service charges. They should be pursued further, for investigation, in regard to extension prior to rupture, by less strains than are requisite to produce it. The information already acquired on this subject would be much more valuable to the government, if we had a national foundry where it could be applied to practical use. Further investigations might also be made with more facility and accuracy at such an establishment; and I renew the recommendation, heretofore repeatedly made, for the proper legislation to authorize its construction.

The operations at the national armories have been restricted to the completion of new models for small-arms; the alteration of old models to long range rifled arms, and to the preparations requisite for the exclusive manufacture of the adopted new model, of which many of the parts have been fabricated. This model, which is common in its general principles to all our small arms, is a rifled arm (such as is commonly called the Minié rifle), with the improvement of a lock, after Maynard's plan, self priming, when used with the Maynard primers, and as well adapted to use with the percussion cap as the ordinary percussion lock. The alteration of flint lock to rifled arms, with the self-priming lock, has been effected to the limited extent which the means available for the purpose would allow. The results of trials with these arms leave no doubt of the propriety of the measure, which I heretofore recommended, of altering all the old model arms of the United States, including those distributed to States and Territories, by converting them into rifled arms, with the percussive self-priming lock, so as to make them conform to the new model. The arguments then advanced in favor of granting the authority and means for executing this measure have lost none of their force by subsequent reflection and experience. The propriety and necessity of using only the best and most effective arms is obvious. With a population accustomed to the use of arms, familiar with and competent to judge of their merits or defects, the moral effect of feeling themselves inferior in their armament and equipment would be disastrous. The only point, then, which remains for consideration is whether the improvements can be applied to our present arms, so as to give to them the desired efficiency. The importance of the improvements and the susceptibility of our arms to receive them are not matters of theory or speculation, but have been proved by actual trial. It is not proposed to hasten, inconsiderately, to the adoption of a scheme of questionable advantage, but one which has undergone various and repeated tests in our own and in other countries, and the merits of which have been practicably established. New models of small-arms, with the improvements before mentioned, have been completed, and the alteration of arms of the old model, so as to apply to them all the modern improvements, has been commenced and has progressed far enough to show conclusively that they can be made equal in efficiency to those of the new model. There is in the United States arsenals and in possession of the States upwards of half a million of these arms, which have cost between six and seven millions of dollars. In their present condition they are very inferior to the improved arms, and, in order to be made properly efficient and serviceable, they must be altered. It will be remembered that, for many years past, this government has steadily, and at great cost, been filling our arsenals with arms of superior quality, according to any then known standards. Recent improvements have rendered these arms relatively inferior; but, fortunately, we need not lose the fruit of our previous labors. In a short time, with adequate

means, we may apply to our present stock of arms these recent improvements, and thus rapidly and satisfactorily give to them the greatest known military efficiency. The propriety of the measure being demonstrated its execution becomes a mere question of time. Shall it be done as rapidly as practicable or linger on through the long period of time which will be required to do the work with the ordinary appropriation? The rapid accomplishment of this work has the advantage of being more economical, for it is obvious that, as the number of arms altered in a given time is increased the *pro rata* cost is diminished; to which is to be added another and more important consideration, that of being prepared at the earliest period to meet any emergency.

Reports of experiments by the Ordnance Department with the improved small-arms have been printed and distributed for the use of the army and militia; to the latter in the proportion of their distributive share of arms as fixed by law. The diffusion among the volunteer and militia troops of the information therein contained, respecting the improved arms, will enable them to learn their powers and understand, theoretically, their use, in anticipation of having such weapons furnished to them.

But to give them a practical knowledge of improved small-arms they should be placed in their hands for purposes of instruction in time of peace; and, to this end, I renew the recommendation heretofore made for an appropriation which will enable the government to alter the small-arms heretofore issued to the States for the use of the militia, so as to make them conform to the improved model which has been adopted for the United States service. And it is also recommended that the attention of Congress be called to the necessity of providing by law a better system of accountability for arms furnished by the general government to the States.

From the failure of inventors and patentees to deliver the breech-loading arms, which were ordered for trial, it has not been possible yet to make the practical tests which are necessary to ascertain "the best breech-loading rifle," or whether any of those which, on preliminary examination presumed to be useful, will be found, after trial in the field, worthy of being adopted into the military service.

The District of Columbia armory building will soon be completed at a cost not exceeding the appropriation, which, it will be remembered, did not include furniture for the building nor the improvement of the adjacent grounds.

Sites have been selected for the new arsenals in Texas, New Mexico, and Washington Territory, for which appropriations were made at the last session of Congress, and measures have been taken to secure valid titles thereto, as required by law, before commencing the needed buildings.

A greater concentration of the operations of the Ordnance Department, so far as respects arsenals of construction, is desirable. To confine such work to four principal arsenals—one at the north and one at the south in the Atlantic States; a third in the west, on the Mississippi or at a point convenient for the transportation of its products to that river; and a fourth on the Pacific coast—will secure the advantages of greater uniformity and economy in constructing and at the same time afford practical instruction to the officers and enlisted men in all the various duties of this branch of the military service. This may be done without reducing the number of arsenals of deposit or interfering with the establishment of others at desirable positions, the purpose being merely to restrict construction to the four principal arsenals located as above stated.

Of the present arsenals, one certainly, the Watervliet Arsenal, in New York, and another probably, the North Carolina Arsenal, at Fayetteville, may be used as arsenals of construction. These, with the arsenal just begun at Benicia, California, may, by proper additions to their present buildings, workshops, machinery, and other means for storage and fabrication, be made three of the constructing arsenals. The public land pertaining to the arsenal at Saint Louis is too contracted to be suitable for this purpose, for which, in all other respects, it would answer well. The remaining arsenal of construction should, therefore, be built on a suitable site, to be selected for the purpose. To effect this desirable arrangement will require legislation, appropriating means for increasing the capacity of these arsenals if selected from those already existing, and for their construction if they are to be built.

[Extract from the President's Annual Message, December 2, 1856. Executive Documents, third session Thirty-fourth Congress, vol. 1, part 1, p. 17.]

Legislation has been recommended by me on previous occasions to cure defects in the existing organization and to increase the efficiency of the army, and further observation has but served to confirm me in the views then expressed, and to enforce on my mind the conviction that such measures are not only proper but necessary.

[Letters to W. D., vol. 11, p. 454.]

ORDNANCE OFFICE,

Washington, December 19, 1856.

SIR: The accompanying letter, from Captain Rodman, of the Ordnance Department, is respectfully submitted to you with the remark that, in consequence of the great difficulty attending the development and detection of defects in cast iron for guns, and the numerous accidents that have occurred, even after it was supposed that satisfactory tests had been applied, no means should be omitted that offer a prospect of preventing a state of things that might be productive of national disaster. I would, therefore, recommend that Captain Rodman be directed to take station at the Allegheny Arsenal, for the purpose of aiding in the prosecution of further experiments for the improvement of gun metal, the endurance of guns, the regulation of projectile force, and of the propriety of a change in our models.

A programme of such a course of experiments as may seem requisite will be presented for your approval as soon as the opinion of some officers of this department having experience in that service can be had.

Very respectfully, &c.,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JEFFERSON DAVIS,
Secretary of War.

ORDNANCE OFFICE,
Washington, January 26, 1857.

SIR: I have to acknowledge the reference to this office for report of a letter from the Committee on Claims of the House of Representatives, inclosing the petition and papers of John C. Stebbins and others.

The petition asks for an appropriation of \$1,500 to pay the fees and expenses of Counsel William W. Eaton, whose attendance before the Board of Commissioners, appointed in 1853 to investigate the relative efficiency, economy, and safety, for the management of the public armories, of the two systems of superintendence, by civilians and by ordnance officers, the petitioners procured by the desire, as they aver, of members of the board, and whose bill of charges for expenses and services, amounting to \$1,260, is filed with the petition.

The committee desire whatever information the department can furnish them to enable them to act intelligently on the subject of the petition, and also with reference to the *value* of the change which has been made in the superintendence of the armories, and the comparative cost of the manufacture of arms before and since the change.

This claim was presented to you in July, 1854, by Mr. Charles Stearns, based on the same grounds, and with evidence substantially the same as is now before the committee. He states in his letter to you that "the papers have been in the hands of General Shields, chairman of the Military Committee of the Senate, and he suggests that it will be necessary to get the approbation of the Secretary of War preliminary to the action of the committee on the subject." The claim at that time was for services of William W. Eaton as counsel of Louis Foster, Joseph Lombard, John C. Stebbins, and Charles Stearns, for attendance and services as assistant counsel, and of some witnesses for per diem and traveling, and amounted to \$1,904.64. On receipt at the War Department of Mr. Stearns's letter and the accompanying papers, the subject was carefully examined, and the conclusion arrived at was communicated to Mr. Stearns by your letter of the 31st July, 1854, as follows, viz: "I cannot find that the government authorized the incurring of any of the expenses stated in the account, or that it has derived any benefit therefrom. No legal or equitable claim against the government for their payment is therefore established."

From an examination of the petition it appears that the petitioners base their claim solely on the grounds that they employed counsel at the desire of some members of the board, in order to bring facts properly before it, and to facilitate the proceedings and thus save time and expense to the government; and that those members promised to recommend an appropriation to pay the necessary expenses. It is not claimed that the board, acting in their official capacity, expressed any such desire, entertained any such views as to the effect of employing counsel, or made any such promise. Indeed, their official action in making up their estimate, to be submitted to Congress for an appropriation to meet the expenses of the board, without including the counsel fees or expenses of witnesses on either side, indicates the reverse. But whatever may have been the wishes, views, or promises of individual members, or of the whole board, they had no authority, either individually or collectively, to employ or authorize the employment of counsel, or to summon and compel the attendance of witnesses, or to administer an oath. The effect of the employment of counsel is a matter of opinion, as the experiment of conducting the investigation without it was not tried. My own opin-

on is that the inquiry was not facilitated thereby, and that it was not subservient to the cause of truth; nor do I understand the necessity for it, as there were gentlemen of the legal profession on the board as well qualified to conduct the inquiry as any counsel that could be employed, and who alone were legally authorized to do so. The legitimate expenses of the commission have already been appropriated by Congress and paid. A more groundless claim than that presented in the petition has never come under my notice, and if it be granted it will bring others in its train, the amount of which cannot be estimated. There are the counsel fees on the other side, besides the per-diem and traveling allowances of a multitude of witnesses, all of which are just as equitable as this claim, the allowance of which will be an invitation to present them and an argument in their favor.

The *value* of the change which has been made in regard to the superintendence of the national armories may be safely and correctly deduced from the fact that it excludes from the supervision and management of those military establishments a certain class of the citizens of our country, the officers of its army, who by their education and professional acquirements and experience are most competent to manage them to the best interests of the government, while it leaves them open to every other class of citizens of whatever calling or profession.

The intimation in the petition that "the military supervision was unskillful and wasteful," whether made on the authority of the petitioners or any other, is deceptive and untrue, as is abundantly proved by the improvement in the condition of the armories, and the better quality and less cost of their products which commenced with and continued through that supervision.

It is impossible to state accurately the comparative cost of the manufacture of arms at the national armories before and since the last change in the mode of superintendence, for the reason that very few arms have been made since that change. This results from the adoption, soon after it, of new models for all our small-arms, requiring modifications of the old tools and machinery and the preparation of some new ones before the work of fabricating complete arms could be commenced. This has caused an expenditure at the two armories, from the beginning of the present civil superintendence to the end of the year 1856, including a period of twenty-nine months, amounting to \$1,043,102.35, while the work on arms during the same time amounts only to 21,261 muskets, rifles, carbines, and pistols made and 11,258 arms altered. It is *known* that the whole of the expenditure is not chargeable to the fabrication and alterations of arms, and the exact amount so chargeable cannot be ascertained from the returns in this office. There is no reason, however, to suppose from the information we have on the subject that the change in the mode of superintendence has wrought, or will effect, any advantage in the manufacture of arms as respects either skill or economy; but if we judge from past experience, where the means of forming a comparison exists, the conclusion must be to the contrary.

The letter from the Committee on Claims, with the accompanying papers, is returned herewith.

Respectfully, &c.,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JEFF'N DAVIS,
Secretary of War.

[Letters to W. D., vol. 11, p. 469.]

ORDNANCE OFFICE,
Washington, January 30, 1857.

SIR: The report of Captain Rodman, of the Ordnance Department, on experiments recently made by him on the strength of gun-iron and the modes of casting will be received at this office, it is expected, before the close of the week. It will have to be submitted to officers of the department who have had experience in foundry duty, and a programme, as mentioned in my letter of the 19th ultimo, herewith inclosed, will be drawn up for your consideration, of a course of experiments in relation to the quality of iron as a material for cannon, which the good of the service demands should be made before we proceed further in the casting of guns of large caliber.

Although this department, as is known and admitted, has done its full share in the investigations of causes which affect the quality of gun-metal, it has not attained that knowledge of the subject which will secure us against accidents of a serious character; and the matter must be further prosecuted to attain that end. But as it will not be practicable to submit to you the programme of experiments in time to ask legislation, during the present Congress, to meet the expenses of the necessary trials, I deem it proper, in anticipation, to recommend that an appropriation of \$25,000 be requested for the purpose of making further tests of gun-metal for heavy cannon.

Respectfully, &c.,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JEFF'N DAVIS,
Secretary of War.

[59 W. D., 1857.]

WAR DEPARTMENT,
Washington, February 16, 1857.

SIR: I have the honor to transmit, inclosed, an estimate prepared by the Chief of Ordnance of the cost of a gun of a large caliber which it is proposed to manufacture and submit to trial in connection with the defense of places against naval assaults.

The estimate, which amounts to \$44,500, includes the cost of a bronze gun of 28 inches caliber, and the carriage, implements, &c., necessary to it.

Deeming the proposed experiment to be a proper one, and valuable as connected with our system of harbor defense, I commend the estimate to the favorable consideration and action of your committee.

Very respectfully, your obedient servant,

JEFF'N DAVIS,
Secretary of War.

Hon. J. A. QUITMAN,
Chairman Committee Military Affairs, House of Representatives.

[41 W. D., 1857.]

WAR DEPARTMENT,
Washington, February 12, 1857.

SIR: I have the honor to transmit, herewith, a report of the Colonel of Ordnance, stating the progress that has been made in the experi-

ments as to the strength of gun-iron and the modes of casting and the necessity of additional means for the further prosecution of them.

For the purpose he asks an appropriation of \$25,000, which is approved by this department and commended to the favorable consideration and action of your committee.

Very respectfully, your obedient servant,

JEFF'N DAVIS,
Secretary of War.

Hon. J. A. QUITMAN,
Chairman Committee Military Affairs, House of Representatives.

[Inclosure.]

WASHINGTON, D. C., *February 16, 1857.*

SIR: As directed by your instructions of the 10th instant, we herewith submit a programme of such experiments as in our judgment will be necessary to test the subjects proposed, with an estimate of the expense.

The objects of these experiments are "the improvement of gun-metal in reference to the endurance of guns, the regulation of projectile force, and the propriety of a change in our models."

1st. From experience we know that the difficulty is in making guns of large caliber, for though the metal of which they are made may be of the best quality, yet from the contraction of the iron in cooling, the gun is strained and thus rendered weak to resist the explosive force of the charge. To remedy this, Captain Rodman proposes to cast the guns hollow, as is fully explained in his reports on the subject. To give this experiment a fair test, we recommend that the foundries at West Point, South Boston, and Richmond be requested to furnish, each, of the iron they consider best for making columbiads, a sufficient quantity to make six (6) 10-inch guns; two-thirds ($\frac{2}{3}$) of which are to be sent to Pittsburgh, and from the remaining one-third ($\frac{1}{3}$) they are to cast, each, two 10-inch solid guns. That from the iron sent to Pittsburgh there be made six pairs (12) of 10-inch guns, each pair from the same heat, one of which to be cast solid, and the other hollow; the pairs from the metal received from the other foundries to be cast at the same time the corresponding guns are cast at those foundries. All these guns to be fired to extremity with service charges (omitting the ordinary proof charges), the three guns from the same iron to be fired at the same time, alternate rounds, as in the previous trials by pairs.

The estimated expense of manufacturing these guns, conducting the trials, making the tests, &c., of the iron, at three thousand dollars (\$3,000) per gun, is \$54,000.

2d. As all guns are strained, more or less, in cooling, it is possible that it may be relieved in time when this strain is not too great, and that a gun used immediately after fabrication may fail, whereas had it not been fired at all till some time after fabrication it might prove to endure more. To test this element of time it is proposed to cast five pairs of 10-inch columbiads, each pair from the same heat, and to fire one gun of each pair to extremity as soon after casting as practicable, and the corresponding reserved guns at fixed intervals of time after casting. The expense of manufacturing these guns, conducting the trials, making the tests, &c., of the iron, at \$3,000 per gun, will be \$30,000.

"THE REGULATION OF THE PROJECTILE FORCE."

1st. To determine the maximum pressure due to a given weight of powder and shot, and what weight of projectile is equivalent in bursting

tendency to a given weight of powder; also, the difference in bursting tendency due to a given difference in temperature of the same charge of powder at the moment of ignition. This experiment will require five guns of different caliber, and guns now in service might be used for the purpose. Probable expense of making the trials, say, \$5,000.

2d. It is known that powder now used in service owing to its rapid rate of combustion possesses highly breaking qualities, to remedy which it is desirable to ascertain what advantages may be derived from the use of powder of a less rapid rate of combustion, or from charges so prepared as to give, as nearly as possible, a uniform pressure upon the projectile during its passage through the bore of the gun. The preliminary trials under this head may be made with guns now in service. For continuing the trials and determining the proper model of guns for prepared charges, one 10-inch gun will be required. Total cost of this experiment, \$5,000.

3d. To determine the difference in endurance due to a given difference in bursting tendency at each discharge, there will be required five pairs (10), of 10-inch guns, which with cost of experiments, &c., at \$3,000 per gun, will be for this experiment \$30,000.

4th. To determine the difference in endurance due to a given difference in thickness of metal or the law of diminution of strain from the interior outward, there will be required five guns of the largest caliber that can be cast from one heat. Probable cost of guns, making experiments, &c., say, \$16,000.

"THE PROPRIETY OF A CHANGE IN OUR MODELS."

1st. To determine the effect of chambers on the endurance of heavy guns and the necessary thickness of metal in the breech, two pairs of 10-inch guns will be required. One gun of each pair to be finished with and the other without a chamber, each pair to be proved to extremity by alternate rounds with service charges. Cost of guns, making trial, testing metal, &c., at \$3,000 per gun, \$12,000.

Recapitulation.

To determine the proper mode of casting	\$54,000
To determine the effects of time on the endurance of guns	30,000
Regulation of projectile force	10,000
To determine the difference in endurance due to a given difference in bursting tendency at each discharge	30,000
To determine the difference in endurance due to a given difference in thickness of metal	16,000
Determination of proper model of guns	12,000
Total cost of experiments	152,000

This estimate does not include the cost of the five guns in service, and recommended to be used in these experiments, which *may* be rendered unfit for service.

All of which is respectfully submitted.

BENJ. HUGER,
Brevet Colonel, U. S. Army, Major of Ordnance.

A. B. DYER,
Captain of Ordnance.

T. J. RODMAN,
Captain of Ordnance.

Col. H. K. CRAIG,
Ordnance Office, Washington.

[Letters to W. D., vol. 11, p. 471.]

ORDNANCE OFFICE,
Washington, February 18, 1857.

SIR: In accordance with instructions in my communications to you of 19th December and 30th January last, I submitted the subject of farther trials of cannon of heavy caliber and of the material of which they are made; the best mode of treating the metal; the best form of casting, whether solid or hollow; and the proper tests to be applied to the guns after being finished, to the consideration of three officers of this department, Major and Brevet Colonel Huger, Captain Dyer, and Captain Rodman, the former being at present the inspector of cannon, and all three officers of much experience in foundry service.

They approached the subject with the full knowledge of its great importance, and treated it with the care and attention which it demanded. They have presented a programme of experiments which they recommend to be made, and also the trial of a new method of applying the expansive force of gunpowder, with a view of diminishing sudden and violent shocks on the material of guns.

I concur with these officers in opinion as to the propriety of the course of experiments; but as the cost of them will be very considerable I would suggest that the opportunity would be favorable for asking of Congress the means of establishing a national foundry, where all these experiments could be carried out more satisfactorily and, I believe, at much less cost.

If the amount embraced in the programme could be made applicable to the erection of such a foundry, it would be a more profitable expenditure for the public interest than if applied directly to the experiments, for with such a national establishment the object of those experiments could be more satisfactorily attained, and the information derived from them could be there practically applied to the public benefit in the improvement and perfection of our ordnance.

The report of the board of officers, embracing the programme and estimate, is herewith inclosed.

Respectfully, &c.,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JEFFERSON DAVIS,
Secretary of War.

[Letters to W. D., vol. 11, p. 482.]

ORDNANCE OFFICE,
Washington, March 20, 1857.

SIR: The usual appropriation "for the manufacture of arms at the national armories," although regularly estimated for, and passed by both houses of Congress, does not appear in the army appropriation act of 3d March, 1857. This item, as appears by the inclosed letter of the Chief Clerk of the House of Representatives, was omitted by mistake, in enrolling the bill. To avoid, as far as possible, the evil consequences of this error, viz, the suspension of operations, and the discharge of the armorers from employment at the armories after the 30th June next, I propose to supply means for continuing work there from the appropriation for arming the militia, of which there is a sufficient amount on

hand. This will not interfere with the execution of the object of that appropriation, as all the arms and equipments due to the militia for the year, under the law for their armament and equipment, will be supplied from the stores on hand at the arsenals. The proposed mode of furnishing means for keeping the national armories in operation is designed to be continued only until the error in the appropriation act can be corrected, which, it is not doubted, will be done early in the next session of Congress, when the actual expenditures may be readily adjusted to the proper appropriations. I request your sanction of the proposed measure.

Respectfully, &c.,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JOHN B. FLOYD,
Secretary of War.

[Letters to W. D., vol. 11, p. 494.]

ORDNANCE OFFICE,
Washington, May 14, 1857.

SIR: I have the honor to submit the following report in relation to the purchase of breech loading rifles under the appropriation for that object:

By the act of August 5, 1854, the sum of \$90,000 was appropriated "for the purchase of the best breech-loading rifles, in the opinion of the Secretary of War, for the use of the United States army: *Provided*, That the Secretary of War, after a fair practical test thereof, shall deem the purchase advisable and proper." After preliminary trials of a great number of breech-loading rifles presented by inventors, the following were reported as "giving sufficient evidences of merit to authorize a farther practical trial in the hands of troops"; and orders to supply them for that purpose, to the extent and on the terms specified opposite to each, were given by this office, with the sanction of the Secretary of War, viz: 200 of Sharp's, at \$30 each, ordered July 28, 1854; 200 of Perry's, at \$25 each, ordered February 24, 1855; 200 of Green's, at \$30 each, ordered May 24, 1855; 200 of Gibbs's, at \$30 each, ordered November 17, 1855; 170 of Merrill's, at \$35 each, ordered July 26, 1855; 200 of Burnside's, at \$30 each, ordered April 21, 1856; 200 of Symmes's, at \$40 each, ordered July 18, 1855; 100 of Howe's, at \$32 each, ordered January 28, 1857; 200 of Maynard's breech-loading arms, at \$30 each, were also recommended by this office, after the preliminary trial, to be purchased; but no decision of the Secretary of War, on this recommendation, has been received here. Of the arms thus ordered, the only ones that have been delivered are Sharp's, Green's, and 20 of the 200 ordered from Symmes. Of the residue I think there is no probability of any being delivered except Burnside's, the whole 200 of which, I am informed, are in process of fabrication, and will be delivered in two or three months at the latest. Sharp's arms have undergone a practical trial by troops, and Greene's have been issued for the same purpose. The reports in relation to the former are favorable; none, in regard to the latter, have been received.

The expenditures from the appropriation of \$90,000 have been—

For Greene's carbines.....	\$6,052 00
For Symmes's carbines.....	804 50
Total.....	6,856 50

leaving a balance unexpended, at this date, of \$83,143.50. Of this balance there will probably be required, to pay for Burnside's arms, about \$6,000; and, besides this, I do not think there will be any other draft on the appropriation, on account of orders already given.

Respectfully, &c.,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JOHN B. FLOYD,
Secretary of War.

[Letters to W. D., vol. 11, p. 500.]

ORDNANCE OFFICE,
Washington, June 3, 1857.

SIR: In reporting, agreeably to your direction, on Brevet Major Thornton's letter of the 27th February last, I can quite safely and confidently assert that if the amount of service he has rendered in New Mexico, and the zeal, fidelity, and ability with which he has rendered it, are regarded as the measure of his compensation, the pay and allowances of his brevet rank are by no means too great. As a matter of equity he is clearly entitled to that compensation; and if it can be granted to him, with a knowledge of the facts of his case, which I shall state, I will be much pleased with the result.

The duties which Brevet Major Thornton had assigned to him as senior ordnance officer in the Department of New Mexico are fairly stated in his letter. They were such as he did perform and could perform only by virtue of his commission in the Ordnance Corps, in which he holds but one rank, that of captain. Those duties were such as might, with perfect propriety, have been assigned to a field officer of ordnance, had one been available, but they were also properly assignable to, as they were actually performed by, a captain of that corps, without the command of enlisted men equal in number to a company. This statement in relation to the past services of Major Thornton in New Mexico is submitted for your information in regard to his application for the compensation of his brevet rank while performing those services. The important parts of his mission having been accomplished, his duties there are now but nominal, as stated in my report to the War Department of the 20th March last, respecting the position of officers of this department, and in that of the 2d instant, relative to the arsenal in New Mexico, both of which reports are respectfully referred to in this connection.

The allowance to Major Thornton of an office and fuel therefor, as also to the senior ordnance officers in other military departments, is a provision essential to the proper performance of their official duties. Such an allowance is made by Army Regulations to officers of the Quartermaster's, Subsistence, and Pay Departments, when on similar duty, and the omission to specify ordnance officers in those regulations arose from their being generally on duty at arsenals, where offices are among the public buildings of the post. I recommend that the allowance be granted, to include the cases, past and future, of ordnance officers on duty at the headquarters of the military departments.

The letter of Brevet Major Thornton is returned herewith.

Very respectfully, &c.,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JOHN B. FLOYD,
Secretary of War.

[149 A., 1857.]

[CIRCULAR.]

ATTORNEY-GENERAL'S OFFICE, *June 4, 1857.*

The following regulations have been prepared for the convenience of those who may have occasion to draw conveyances, make abstracts, or collect evidence of title to lands in cases where it may be the duty of this office to certify concerning the validity of title. A strict observance of them will greatly facilitate the examination, as well as tend to correct conclusions:

I. The deed from the vendor to the United States and their assigns must be acknowledged according to the laws of the State, district, or Territory where the land lies.

II. A plot or draft of the land should be furnished, showing the boundary lines, their courses and distances, and the adjoining owners, streets, rivers, or other waters.

III. Where the property proposed to be sold consists of more than one piece, the titles to which are derived through different persons, the dividing lines must be traced on the draft, and the separate pieces distinctly marked.

IV. It is necessary to have an accurate and full abstract of the title, showing its transmission from the original source to the vendor, with each transfer noted in the proper order of time, the name of each grantor and grantee written at length, with dates showing when the several conveyances were executed, acknowledged, and recorded. This abstract must note every fact on which the validity of the title depends, whether it be proved by matter of record, by deed, or *en pais*.

V. The abstract must be verified by being accompanied either with the original documents it refers to or else with copies legally authenticated.

VI. The title papers must all be marked with numbers corresponding to the numbers under which they are arranged in the abstract.

VII. When an estate in the land has passed by devise, the will and the probate must be shown, and if the devisee is not named, proof of his identity will be required.

VIII. Where it has descended from an intestate ancestor to his heirs, satisfactory proof of the condition and number of the decedent's family must be given.

IX. If the estate has passed by a judicial sale or by a sale under the order of any court, or if it has been divided by proceedings in partition, the regularity of the sale or partition must be shown by a copy of the record.

X. The foreclosure of a mortgage can be shown only by an authentic copy of the proceedings had for that purpose.

XI. When the wife of a grantor has not joined in a deed, some evidence must be given that he was unmarried at the time or that his wife is since dead.

XII. If the grantor be a woman it must be shown that she was unmarried at the date of the deed from her.

XIII. When a deed is executed by the heirs of a person within twenty-one years after his death, evidence will be required to show that they were of full age at the time of the grant.

XIV. When the title has passed through a corporate body, the charter must be produced and the authority of the officer who granted away the estate must be shown.

XV. When the estate has been conditional, it will be necessary to furnish clear proof that the conditions have been fulfilled or lawfully excused.

XVI. When the title depends on statute law, other than the public laws of the United States; upon a local law differing from the general rule of the common law; upon a public document, or upon history, the books relied on to establish it should be accurately referred to and the page noted.

XVII. Presumptions arising from lapse of time will be allowed the weight given to them by the judicial tribunals of the State where the land lies. An apparent defect in an old deed need not be explained if the possession of the property has been according to such a deed for thirty years or upwards.

XVIII. A title offered to the United States will not be regarded as invalid on account of an outstanding title which has been barred by a legal limitation. But in all cases where time is relied on to extinguish an outstanding title the party must show by clear proof, not only an adverse possession for the full period, but also that there are no persons who have rights that may be saved by exceptions to the statute.

XIX. Before sending the papers to this office for examination, they should be submitted to the attorney of the United States for the district in which the land lies. It will be his duty to certify an opinion on the whole title, and to state particularly whether the local laws are correctly given, the papers properly authenticated, and the facts established by satisfactory proof.

Very respectfully,

J. S. BLACK.

[193 W. D., 1857.]

WAR DEPARTMENT, *July 12, 1857.*

The Colonel of Ordnance is requested to furnish the Secretary of War with a report showing:

1st. The duties generally of the Ordnance Department as connected with the army, and in relation to other branches of the public defense.

2d. The appropriations of this fiscal year for the several objects to be effected through the Ordnance Department; the amount of each, and for what purpose; what measures have been taken towards executing objects of each appropriation; how much of each appropriation has been drawn from the Treasury; how much is pledged on orders given or contracts made; the nature of these orders or contracts; when made and to whom given; and what amount of each appropriation remains undrawn and unpledged.

JOHN B. FLOYD,
Secretary of War.

[215, W. D., 1857.]

ORDNANCE OFFICE,
Washington, July 30, 1857.

SIR: In compliance with the request contained in your letter of the 24th instant, I have the honor to report:

The duty of the Ordnance Department, as connected with the army, is to supply to the regular army, and to all troops regularly mustered into the service of the United States, all the "ordnance and ordnance stores" requisite for the proper armament and equipment of those troops. "The general denomination 'ordnance and ordnance stores

comprehends all cannon, and artillery carriages and equipments; all apparatus and machines for the service and maneuvers of artillery; all small-arms and accouterments, and horse equipments; all ammunition, and all tools and materials for the ordnance service." (Army Regulation, paragraph 1229).

Ordnance and ordnance stores for the use of troops are furnished, in time of peace, on requisitions, first submitted for examination to the Colonel of Ordnance, and approved, after such examination, by the General-in-Chief of the army; in time of war, on the order of any general or field officer commanding an army; garrison, or detachment.

The military *personnel* of the Ordnance Department is reported, by returns of the same made monthly to the Headquarters of the army and to the Adjutant-General. These are the duties of the Ordnance Department as connected immediately with the army.

Besides these, the Ordnance Department is charged with the duty of providing all the ordnance and stores required for arming the fortifications of the country, and of procuring and forwarding to their proper destination all articles requisite for arming and equipping the whole body of the militia of the United States under the act of April 23, 1808. As necessarily incidental to these duties, the department has charge and control of all permanent armories, arsenals, and ordnance depots, and of all the ordnance and ordnance stores deposited thereat; it is required to devise and submit for the approval of the Secretary of War patterns or models of all ordnance and ordnance stores for the land service; to make estimates for procuring the same, and to disburse the amounts appropriated therefor.

The duties immediately connected with the army, being in the nature of military details, do not necessarily come under the immediate notice and orders of the Secretary of War. All the other duties are intrusted to the charge of the Colonel or senior officer of the Ordnance Department, under the direction of the Secretary of War.

That direction is given generally in the Army Regulations of 1857, Articles XL and XLVI, and in particular cases by special instructions from the War Department. All articles which the Ordnance Department is required to supply, whether for the regular troops, for the fortifications, or for the militia, are procured either by fabrication at the public arsenals, by contract, or by open purchase.

Fabrication at the arsenals is resorted to for all articles that the means of those establishments enable us to make there.

This does not include, however, cannon, shot and shells, certain small-arms, and a portion of the horse-equipments and accouterments; and these articles are obtained from private founders and manufacturers, either by contracts, or by orders to furnish certain articles, to the extent required for use, and not exceeding in cost the amount of existing appropriations applicable to their procurement.

In consequence of its requiring to fabricate these articles of suitable quality, an amount of experience, skill, and preparation confined to a few founders and manufacturers, who have made such work their special business, it has been deemed necessary for the public interest not to resort, in order to obtain them to contracts based on the lowest bids, but to orders given to regular manufacturers to supply, at fair remunerative prices previously ascertained. The orders, hereafter to be mentioned, in reporting on the appropriations, were given in accordance with this rule.

Trials of new arms and other inventions pertaining to the military service also constitute a portion of the duties of the Ordnance Department,

as incident to that of proposing, for the approval of the Secretary of War, new models or patterns. These trials are made under a general rule from the War Department of which a copy is herewith inclosed (No. 1).

The Ordnance Department is, in brief, the department of arms and munitions of war, both for the army and for the nation. In matters pertaining to its functions it is enjoined by law "that the Colonel of the Ordnance Department, or senior officer of that department of any district, shall execute all orders of the Secretary for the Department of War."

The information respecting the appropriations for the service of the Ordnance Department, requested in your letter, is furnished in the following statements and remarks under each head of appropriation:

1. *For the armament of fortifications.*—The amount appropriated for this object was \$300,000. It is applicable to the purchase of sea-coast and garrison cannon and of projectiles therefor; of timber and other materials for sea-coast and garrison gun-carriages, and their implements and equipments; to the repair and preservation of the armament already in place; and to the payment of mechanics employed at the arsenals in manufacturing gun-carriages and other articles for arming the forts.

In execution of the objects of this appropriation, orders have been given to the foundries at West Point, Boston, Richmond, and Pittsburgh for the manufacture of 310 sea-coast and garrison guns, and 21,000 projectiles for the same. The extent and character of these orders are shown by the accompanying copies of letters to the West Point foundry, dated respectively 9th and 22d April, 1857; and marked Nos. 2 and 3; the other foundries having received letters of the same tenor. These orders have been formally accepted, in writing, by the West Point and Richmond foundries, at which the work ordered is in process of execution. One of the proprietors of the foundry at Boston has mentioned to me, verbally, that he accepted the order, although he has not signified his acceptance formally, nor am I informed whether he has or has not commenced the work, nor what preparations, if any, he has made therefor. The order to the foundry at Pittsburgh has not yet been accepted. The amount of these orders for each foundry is about \$46,000.

There may, therefore, be considered as pledged to the four foundries \$184,000. An order has also been given to Mr. S. C. Robinson, of Richmond, Va., for 6,600 42-pounder shot, as per letter to him, a copy of which, dated May 29, 1857, is inclosed (No. 4). The amount of this order is about \$10,000. No acceptance of it has yet been received, but there may be considered as pledged on this order \$10,000. The experimental trials of Dr. Read's projectiles, including the additional cannon therefor recently authorized by you on his application, may be estimated at about \$2,700.

The amount which has been drawn from this appropriation to carry on the manufacture at the arsenals of seacoast and garrison gun-carriages and equipments is \$13,636, and there will be required for expenditure thereat, up to the end of the present fiscal year, about \$87,000.

To recapitulate:

Amount appropriated.....	\$300,000
Pledged on orders to foundries.....	\$184,000
Pledged on orders to S. C. Robinson.....	10,000
Pledged for trial of Dr. Read's projectile.....	2,700
Drawn from manufacture at arsenals.....	13,636
Required for same during the year.....	87,000
	<hr/> 297,363
Remaining undrawn and unpledged.....	2,664

2. *For the current expenses of the ordnance service.*—The amount appropriated for this object was \$150,000. It is applicable to defraying the expenses of receiving, issuing, and keeping in good order the arms, ordnance stores, and other public property in use and in store at the different arsenals and ordnance depots in the United States; to the purchase of the draught animals, forage, fuel, and stationery required for the ordnance service; and to all the incidental expenses of the same. The amount which has been drawn from this appropriation for expenditure at the arsenals is \$5,508.79.

There is pledged from it, for the manufacture of two of Lee and Guthrie's guns, for trial according to your directions, \$600. There will be required for expenditure at the arsenals, for the purposes to which the appropriation is applicable, up to the end of the present fiscal year, about \$125,000, leaving undrawn and unpledged of this appropriation \$18,591.21.

3. *For ordnance, ordnance stores and supplies, including horse-equipments, for the mounted regiments.*—The amount appropriated for these objects was \$250,000. It is applicable to the procurement of siege and field cannon and gun carriages, caissons and battery wagons with their implements, equipments and harness; side-arms and accouterments, for the different kinds of troops composing the army, and to defray the expenses of fabricating and repairing the same; for the purchase of materials for and the preparation of ammunition, and for procuring horse equipments for mounted troops. In execution of the objects of this appropriation there has been drawn from it—to pay for Colt's pistols, \$1,411.73; to pay for horse equipments of the pattern recommended by a board of cavalry officers, \$4,024, and to meet expenditures at the arsenals, \$18,600. The outstanding contract and order for articles, to be paid for from this appropriation, are as follows, viz: balance on a contract with E. Remington & Sons, dated September 9, 1854, made by direction of the Secretary of War, for parts to adapt flint-lock arms to Maynard's lock, \$26,468; order to James T. Ames, of Chicopee, Mass., dated December, 1856, and April and May, 1857, for 1,000 new pattern cavalry sabers, 500 non-commissioned officers' swords, and 4 12-pounder bronze guns, new pattern, amounting to \$18,050; order to S. Colt, dated June 13, 1857, for 100 revolvers, amounting to \$1,800; orders to Lacy & Phillips, of Philadelphia, dated June and July, 1857, for 160 sets of horse equipments, amounting to \$6,430.35; order to W. E. Jones, dated April 8, 1857, for 300 sets horse equipments, amounting to \$11,958; order to R. S. Ripley, dated March 14, 1857, for 500 revolvers, amounting to \$9,000; order to North & Savage, of Middletown, Conn., dated May 23, 1857, for 100 revolvers, amounting to \$2,008; and order to C. Alger & Co., of the South Boston Foundry, Mass., dated July 7, 1857, for 10 24-pounder bronze field howitzers, amounting to \$6,060.

There will be required for expenditure at the arsenals, for the manufacture of siege and field carriages and accouterments; for the purchase of ordnance stores for issue, and the preparation of ammunition, during the present fiscal year about \$80,000. To recapitulate—

Amount appropriated.....	\$250,000 00
Drawn to pay for Colt's pistols.....	\$1,411 73
Drawn to pay for horse equipments.....	4,024 00
Drawn for expenditure at arsenals.....	18,600 00
Pledged on Remington & Sons' contract.....	26,468 00
Pledged on orders to Ames	18,050 00
Pledged on orders to Colt.....	1,800 00
Pledged on orders to Lacy & Phillips.....	6,430 35

Pledged on orders to W. E. Jones	11,958 00	
Pledged on orders to R. S. Ripley	9,000 00	
Pledged on orders to North & Savage	2,008 00	
Pledged on orders to C. Alger & Co.	6,060 00	
Required for expenditure at arsenals	80,000 00	
		185,810 08
Remaining undrawn and unpledged		64,189 92

4. *Arming and equipping the militia.*—This is a standing appropriation of \$200,000 per annum, made by the act of 23d April, 1808, "for the purpose of providing arms and military equipments for the whole body of the militia of the United States, either by purchase or manufacture."

The whole amount now available under this appropriation, including the \$200,000 for the present year and a balance of former years' appropriations, is \$358,208.15.

The outstanding orders for arms payable out of this appropriation are, to S. Colt, dated June and July, 1857, for 250 revolvers, amounting to \$4,500; balance on an order to James T. Ames, of Chicopee, Mass., dated February 15, 1857, for 1 6-pounder bronze gun, amounting to \$400, and an order to C. Alger & Co., of Boston Foundry, dated July 7, 1857, for 20 6-pounder bronze guns, amounting to \$8,500.

There will also be required from this appropriation, for the expenses of inspecting, packing and transporting to the States and Territories the arms and equipments for the militia, the sum of \$10,000. Under the arrangement for continuing operations at the armories, rendered necessary in consequence of the accidental omission to insert the usual appropriation, which passed both houses of Congress at the last session, "for the manufacture of arms at the national armories" until that omission can be rectified, there will be required from this appropriation, it is estimated, about \$200,000. There will be required for expenditure at the arsenals, in the manufacture of gun carriages, implements, equipments, and accouterments for issue to the militia, about \$60,000 during the year. The condition of this appropriation may, then, be stated as follows:

Amount available		\$358,208 15
Pledged on order to S. Colt	\$4,500 00	
Pledged on order to J. T. Ames	400 00	
Pledged on order to C. Alger & Co.	8,500 00	
Required for delivering arms to the States	10,000 00	
Required for the arsenals	60,000 00	
Required for the armories	200,000 00	
		283,400 00
Remaining undrawn and unpledged		74,808 15

5. *For making further tests of gun metal.*—The amount of this appropriation was \$25,000. It was made on a special estimate submitted to the Secretary of War in a letter from this office, dated 30th January, 1857, a copy of which is inclosed (No. 5). The programme, herewith inclosed (No. 6) of a proper course of experiment, as referred to in that letter, called for a larger appropriation than the Secretary of War deemed it proper to ask from Congress. The actual course of experiment had, therefore, to be reduced in extent, to correspond to the means appropriated. Such a course Captain Rodman has been directed to undertake and carry out at the foundry at Pittsburgh, as will be more fully seen by the letters to him of May 27 and June 16 and 25, copies of which are inclosed (Nos. 7, 8 and 9). It consists mainly in making 7 10-inch columbiads, a portion cast hollow, and another portion cast

solid and bored out in the usual way of making cannon; of testing by firing with service charges the relative endurance of the guns cast by the two modes, and, at the same time, the relative strength of the different kinds of gun metal used at the foundries where cannon are made for the government. The amount of appropriation is insufficient for the prosecution of such a course of experiments as should be made, and I doubt whether it will be practicable to carry out a full and satisfactory course, so as to reach reliable results, until we shall have a national foundry. Of the sum appropriated \$7,800 will be required to pay Messrs. Dupont & Co. for 400 barrels of cannon powder to be used in testing the cannon, and \$1,500 has been drawn for expenditure at Pittsburgh, in making the requisite preparations for the tests. The balance, \$15,700, will all be required to make the further tests to the extent which the means admit of.

The other appropriations, for objects to be effected through the Ordnance Department, are for arsenals, \$137,250; for the purchase of ground for extension of Washington Arsenal, \$80,450.10; for repairs and new machinery at Springfield Armory, \$68,685; for the erection and completion of the water shops at the same place, \$70,985; for repairs and improvements and new machinery at Harper's Ferry Armory, \$34,970; for finishing and furnishing the armory for the militia of the District of Columbia, \$7,827, and for machinery, tools, and fixtures for the arsenal at Fayetteville, N. C., \$50,350. These appropriations are all for objects specified in the estimates on which they were made (see printed document, Estimates of Appropriations for the year ending June 30, 1858, pages 160-166), are applicable to the execution of those specific objects only, and are required therefor. No part of any of them has yet been drawn, excepting \$50,000 for the water shops at Springfield Armory; but all are pledged for the execution of the purposes for which they were estimated.

Very respectfully, your obedient servant,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JOHN B. FLOYD,
Secretary of War.

[Indorsement.]

I do not concur in the mode of expending the money appropriated for testing gun metal, and would have arrested it altogether if it had not gone so far. As it is, I direct that a sufficient sum be set apart from the appropriation to defray the expenses of two guns of the largest calibre, to be manufactured of such metal as I will hereafter order.

JOHN B. FLOYD.
Secretary of War.

WAR DEPARTMENT, *August 18, 1857.*

[Letters to W. D., vol. 12, p. 8.]

ORDNANCE OFFICE,
Washington, August 14, 1857.

SIR: I have the honor to inclose herewith a tabular statement showing the number of muskets and other small-arms altered from flint-lock to percussion, which are on hand at the different arsenals, and the num-

ber of such arms at each; also the number and description of field guns, howitzers and mortars (exclusive of trophy and experimental pieces) which are unsuitable for service, and where they are. This statement furnishes, it is believed, the information called for by your letter of the 11th instant.

As respects the expediency of selling the altered percussion small-arms or any portion of them, concerning which I am requested also to report, the measure is in my opinion inexpedient at present. The number of small-arms (all rifled) of the latest model is very small, about 3,000; their fabrication at the armories has but just begun, and not more than one thousand per month can be calculated upon being turned out for a year to come, judging from the very slow progress since the change of model. The original percussion arms (not altered) on hand at the arsenals are about 250,000 muskets, 56,000 rifles, 18,000 pistols, in all 324,000. If all the altered arms are sold, it will leave on hand a supply of about 327,000 small-arms only. I think that the stock on hand should not be less than one million, and that until it reaches that number by additional manufacture at the armories, no arms that can be made serviceable on an emergency, as all the altered arms reported in the statement can be, should be sold. If offered for sale in large quantities they will not probably command a price nearly equal to their cost or intrinsic value, and the government will sustain a pecuniary loss by such sale. If the sale of small-arms is confined to such as may, on inspection, be condemned as damaged and not worth repair, there can be no objection to it, either on the ground of a diminution of the available stock or of pecuniary loss. Such is the case with the field guns, howitzers, and mortars embraced in the statement.

The commanding officers of the different arsenals and ordnance depots will be called on to furnish lists of the field guns, howitzers, and mortars which may be sold as unsuitable for the public service, and of the damaged small-arms and other ordnance stores not worth repairs, which lists will be submitted to you for the purpose of obtaining authority to sell.

Respectfully, &c.,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JOHN B. FLOYD,
Secretary of War.

Statement of the muskets and other small-arms altered from flint-lock to percussion, and of the field-guns, howitzers, and mortars, unsuitable for United States service now on hand. (See letter to the Secretary of War, August 14, 1857.)

Arsenals where deposited.	Flint arms altered to percussion.				Brass guns, howitzers, and mortars.										Iron guns, howitzers, and mortars.															
	Muskets.	Rifles.	Pistols.		24-pounder guns.	18-pounder guns.	12-pounder guns.	6-pounder guns.	9, 8, and 4 pounder guns.	3 and 2 pounder guns.	8-inch howitzers.	24-pounder howitzers.	12-pounder howitzers.	2½ and 3½ inch howitzers.	Swivels.	Cochorns.	10-inch stone mortars.	13-inch mortars.	10-inch mortars.	Total brass pieces.	18-pounder guns.	12-pounder guns.	9-pounder guns.	6-pounder guns.	2 and 3 pounder guns.	7½-pounder howitzers.	12-inch howitzers.	10-inch mortars.	8-inch mortars.	Total iron pieces.
Allegheny.....	1, 633	2, 528	3, 234											1						1			1							1
Appalachicola.....																														1
Augusta.....																														1
Baton Rouge.....	8, 326	1, 385	2, 040											2	3					2			1		6		5			1
Benicia.....	649																													1
Champlain.....																														1
Charleston.....																														1
Detroit.....																														1
Fort Monroe.....																														1
Frankford.....	6, 993																													1
Kennebec.....	24, 313																													1
Little Rock.....	25																													1
Mount Vernon.....	1, 968																													1
New York.....	884																													1
North Carolina.....	4, 817																													1
Pikesville.....																														1
San Antonio.....																														1
Saint Louis.....	27, 509	3, 018	2, 438																											1
Vancouver.....	2, 493																													1
Washington.....	25, 285																													1
Watertown.....	18, 442																													1
Waverlet.....	45, 517																													1
Springfield.....	100, 101																													1
Total.....	268, 955	6, 931	14, 120	2	1	9	53	8	12	2	16	2	7	4	14	4	1	4	139	28	14	2	79	3	14	4	5	1	150	

[217 W. D., 1857.]

[Circular.]

The chiefs of bureaus of the War Department will report to the Secretary of War at the beginning of each quarter the amount which has been paid during the preceding quarter for public supplies furnished or services rendered on contracts or orders from each bureau; specifying the appropriation, the persons to whom payments have been made and where resident, and the general description of the supplies or services paid for. Also, a statement of the contracts to be made or orders to be given, so far as they can be ascertained, during the ensuing quarter for supplies or services, with the same specifications.

Should it become necessary to make contracts or give orders for supplies or services not included in the reports, the Secretary of War will be previously informed of and consulted respecting the same, either verbally or in writing.

JOHN B. FLOYD,
Secretary of War.

WAR DEPARTMENT, 18th August, 1857.

[250 W. D., 1857.]

The circular of the 18th August last, from this department to its bureaus, is amended as follows: After the words "*paid for*," in the 8th line, insert, "so far as is necessary to show the fiscal operations of the bureaus for the quarter."

By order of the Secretary of War.

JOHN POTTS,
Acting Chief Clerk.

WAR DEPARTMENT, September 29, 1857.

[236 A, 1857.]

ADJUTANT-GENERAL'S OFFICE,
Washington, September 26, 1857.

SIR: By Special Order No. 132, of September 11, 1857, from this office, Brevet Captain J. L. Reno, first lieutenant Ordnance Department, attached to the Utah expedition, was assigned to duty with that command according to his brevet rank.

The subject having been again called up by the receipt of several applications for assignment according to brevet rank, the Secretary of War, to prevent misapprehension, instructs me to say that the special assignment of Brevet Captain Reno, Ordnance Department, in the order above cited, was intended to enable him to exercise command over the detachments immediately under his charge while conducting the same to Utah.

On Captain Reno's turning over the recruits to Phelps's light artillery company, in accordance with General Harney's Special Orders No. 5, of July 19, the assignment to duty according to his brevet rank will cease.

It is presumed that, should it be necessary to equip another battery

of artillery for service with the troops under your orders, the command thereof will be given to an officer of artillery.

I have the honor to be, sir, very respectfully, your obedient servant,
E. D. TOWNSEND,
Assistant Adjutant-General.

Col. A. S. JOHNSTON, U. S. A.,
Commanding Utah Expedition, Salt Lake City, Utah Territory.

[Letters to W. D., vol. 12, p. 28.]

ORDNANCE OFFICE,
Washington, October 22, 1857.

SIR I have to acknowledge the reference to this office of Mr. A. E. Burnside's letter of the 15th instant, for report as to the expediency of the purchase as proposed by him, and a statement of what patent rights connected with fire-arms have been purchased by the War Department, at what prices, and from what appropriations.

Mr. Burnside proposes to sell to the government, for the available residue of the appropriation "for the purchase of the best breech-loading rifle," two hundred of his carbines, nearly finished, about fifty more, also nearly finished, all his stock, machinery, and tools connected with the manufacture of his carbines, valued by him at \$12,000, the use of his patent rights for government purposes, and as much of his time during two years as the government may require in the manufacture of these arms.

The report called for being solely as to the expediency of acceding to this proposition, I abstain from reference to its admissibility under the law appropriating for the purchase of "breech-loading rifles" only, and also from remark as to what may be regarded as the "fair practical test" required by the law to be preliminary to such purchase.

The first view of the expediency of the proposed purchase is, will the government obtain an equivalent for what it is to pay? It will obtain 250 carbines, value, if finished in such style and manner as to pass inspection and proof—

\$30 each, say	\$7,500 00
Stock, machinery, tools, &c., value unascertained, but appraised by Mr. Burnside at.....	12,000 00
Mr. Burnside's time, or so much of it as may be required by the government in the manufacture of his arms during two years, say \$2,500 per annum for the whole period.....	5,000 00

Total (exclusive of patent right)	24,500 00
Leaving as payment for the use of the patent right for government purposes.	55,143 50

This is the result, taking the view of the case most favorable to the government interest, and supposing that it will be found advantageous to that interest to manufacture these arms at the national armories. But it is not certain that all of the 250 carbines offered by Mr. Burnside are of such finish and quality as will be accepted, on inspection and proof, for the government service. It is not certain whether any or what part of the tools, machinery, and stock, offered by Mr. Burnside, are of such quality as can be advantageously used if the government undertakes the fabrication of these arms, and their value, if useful, is not an ascertained, but merely an appraised one by the seller. In so far,

therefore, the government, in accepting the proposition of Mr. Burnside, would be making a blind bargain. But supposing the carbines to be good, and that they will pass inspection and proof, then the existing order to Mr. Burnside for 200 of them will furnish the means of putting them into the hands of troops for actual trial in the field, the result of which will remove all doubt as to their fitness for the military service; when, if the award of the board in favor of the arms is confirmed, the balance of the appropriation will be clearly applicable to their purchase. Again, supposing the tools, machinery, and stock to be good, and such as may be used to advantage in the manufacture of these arms, and worth their appraised value, I do not think their purchase advisable, because I deem it to be for the public interest to confine the operations of the national armories to the manufacture of arms of the established models, which are known to be good and serviceable. It is decidedly preferable to resort to private contract to procure the small number of arms that will be wanted for a special kind of troops, and an inconsiderable one as compared with the whole body, than to incur the cost of machinery and the expense of keeping up a separate branch of manufacture for so small a number of special arms as will be required for the government service. Contractors can do this, because they have the general market to resort to, in addition to the government orders, and can manufacture more extensively. At the time of the passage of the act appropriating the \$90,000, and subsequently, it was understood that the practical test should be a trial of breech-loading arms in the hands of enlisted soldiers in the field, where they would be subjected to all the vicissitudes of the military service. (See inclosed reports from this office, marked A and B.) From the foregoing considerations, I do not deem it expedient to accept the proposition as made by Mr. Burnside.

The patent rights connected with fire-arms which have been heretofore purchased by the War Department are those of Hall for his breech-loading rifle, and of Maynard for his "improvements in percussion primers and gun-locks therefor." The compensation to Mr. Hall consisted of payments, first, for his services in the manufacture of his arms, and second for the use of his inventions of all kinds applied to that manufacture. He was employed at the Harper's Ferry Armory for about fourteen years, during which time he was paid \$37,553.32; of which \$17,332.32 was for services, and \$20,220 for the use of his inventions. The payments to him were made from the appropriation for the national armories.

The compensation to Dr. Maynard was, first, \$4,000 for the privilege of applying his lock and primer to 4,000 arms, under a contract in March, 1845, which secured to the government the right to purchase the same privilege, if desired, for 10,000 arms at \$7,500; for 20,000 arms at \$10,000; for 100,000 arms at \$25,000; and for any greater number, at a price subject to further agreement, but not to exceed twenty-five cents per arm. In pursuance of this contract a second payment was made to Dr. Maynard, in July, 1853, of \$21,000 for the privilege of applying his lock and primer to 100,000 arms, embracing the arms included in the previous contract, and the amount (\$4,000) previously paid. Another contract was made, by order of the Secretary of War, with Dr. Maynard, on the 3d February, 1854, whereby his entire right, title, and interest in all his improvements in percussion primers and gun-locks therefor was purchased for the sum of \$50,000, one-third in cash, and the residue in two equal annual payments. These different payments to Dr. Maynard amount to \$75,000, the whole of which was

taken from the appropriation for the "purchase of ordnance, ordnance stores and supplies." The letter of Mr. Burnside is returned herewith.

Respectfully, &c.,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JOHN B. FLOYD,
Secretary of War.

[Letters to W. D., vol., 12, p. 31.]

ORDNANCE OFFICE,
Washington, October 24, 1857.

SIR: The report of the board of officers who were instructed to examine certain breech-loading arms recently at West Point, N. Y., which was referred to this office for a report thereon, has been examined by me, and I have the honor to state that, in my opinion, the board seems to have adopted every means in its power to enable the members to give a fair and clear expression of their opinion with regard to the relative merit of the various guns presented for their examination; and that the examination was executed with zeal, and award honestly made.

An opinion seems to have been formed that this trial was intended to be final, and that on its result the decision of the Secretary of War would be founded as to the application of the balance of the appropriation of \$90,000. I never regarded the trial in that light, but simply as a means of enabling the War Department to bring this protracted trial to a close without rejecting some arm that might have equal or superior merit to those now in the field undergoing trial there; which kind of trial I regard as coming within the provision of the law making the appropriation for the purchase. Fortunately, the award of the board is in favor of an arm which is now about to be received from the manufacturer and will be immediately issued for trial in the field, the result of which can soon be made known.

Two other breech-loading arms are already in the hands of troops, and another one is ready to be issued from an arsenal in the West, and as a number of army officers of rank and experience will soon assemble at Fort Leavenworth, I recommend that I may be authorized to instruct Brevet Major Ramsay, of the Ordnance Department, who will likewise be there, to call on such of those officers who have witnessed the use of the arms in question for such information as they can give on the subject.

I see no reason for further preliminary trials of these arms. Inventors have had several years in which to offer their guns; and unless the matter is now brought to a close, by limiting the selection to those that can now be placed in the hands of the troops, or are already there, new competitors will be appearing, and thus render the contest interminable, or only to be ended by the wasting away of the prize that is the subject of contention. In this connection, it may be proper to remark that scarcely one of the arms recently tried at West Point had not been materially altered from the form in which it had been first presented to the notice of this department. Some of the inventors had adopted entirely new principles, which they will be ready to change as soon as the old ones are exploded. The arms that may thus be tested by the field trial, are: Sharp's carbine, Green's carbine, both now in service;

Symmes's carbine, at the arsenal, ready for issue; Burnside's carbine, nearly, if not quite, ready to be issued; to which may be added, Colt's rifle, now in use in Florida.

The report of the board, with accompanying papers, is herewith returned.

I am, &c.,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JOHN B. FLOYD,
Secretary of War.

[Executive Documents, first session Thirty-fifth Congress, vol. 2, part 2, p. 533.]

ORDNANCE OFFICE,
Washington, November 5, 1857.

SIR: The following report of the principal operations of the Ordnance Department, during the past fiscal year, is respectfully submitted.

The duties of this department are to provide and furnish "ordnance and ordnance stores" of every description for the use of the regular troops, and for the permanent fortifications and other military posts of the United States; also, the annual supplies for arming and equipping the whole body of the militia. They include the preparation of estimates for these objects; the direction, under the sanction of the War Department, and the supervision of all expenditures therefor, and of all operations at the government armories and arsenals; the care and preservation of all military supplies and other public property at those places; the inspection and proof of all cannon, small-arms, equipments, and ammunition purchased and fabricated for the government; the examination of all requisitions for arms or other "ordnance stores" for the regular troops and the militia; the ordering of proper quantities of them to the different points where wanted, with the transportation and delivery of those supplied to the States and Territories, and the enforcement of the proper and regular accountability for all property of this description belonging to the United States. The annexed statement D shows that these duties require for their prompt and efficient discharge two additional field officers and twenty lieutenants, and indicates the necessity of an increase of the Ordnance Corps to that extent.

As the operations of the past year, in the discharge of these duties, can be more conveniently stated, and more readily referred to by placing them under their appropriate heads, they will be so arranged in this report.

FUNDS.

Amount, as per last year's report, undrawn from the Treasury on the 1st July, 1856	\$549,253 27
In hands of disbursing officers same date	93,151 33
Amount of appropriations for the fiscal year 1856-'57, including the fixed annual appropriation for arming and equipping the militia	1,253,049 00
Received during the year for charges on account of damaged and lost arms, ammunition, &c., and from all other sources	146,059 30
	<hr/> 2,041,512 90 <hr/>
Amount of expenditures during the year	\$1,485,209 55
In hands of disbursing officers June 30, 1857	62,434 78
Remaining in Treasury, undrawn, June 30, 1857	493,868 57
	<hr/> 2,041,512 90 <hr/>

The separate expenditures from each appropriation will be stated under the respective heads as they occur hereafter in this report. The accounts of the disbursing officers of this department have been all rendered, except in one instance, of a military storekeeper in California. His liabilities are less than \$500, and the failure to render his accounts is attributed by him to miscarriage or loss of mails. The attention of his commanding officer has been specially directed to his case, with instructions to require the accounts to be prepared, the balance due to be turned over to him, and to forward them to this office.

The estimates for the next fiscal year have been carefully prepared, and are restricted to such amounts as may be judiciously and economically applied to the legitimate purposes of the military service.

ARMAMENT OF FORTIFICATIONS.

The expenditures from this appropriation, for the fiscal year, amount to \$192,390.11, and the principal articles procured by purchase and fabrication are as follows: 14 10-inch columbiads; 33 8-inch columbiads; 58 42-pounder guns; 10 8-inch columbiad casemate carriages; 34 42-pounder casemate carriages; 16 10-inch columbiad barbette carriages; 46 8-inch columbiad barbette carriages; 90 42-pounder barbette carriages; 32 32-pounder barbette carriages; 1 18-pounder barbette carriage; 4 12-pounder barbette carriages; 2 10-inch sea-coast mortar beds; 21 24 pounder cohorn mortar beds; 2 8-inch columbiad casemate upper carriages; 2 10-inch columbiad casemate chassis; 31 24-pounder casemate chassis; 22 24-pounder chassis for flank defense howitzers; 4 18-pounder barbette chassis; 2,500 42-pounder shot; 693 10 and 8 inch shot; 4,172 10 and 8 inch shells.

Extensive repairs have been made to the armaments of several of the forts, particularly to those in the harbor of Pensacola, as is more fully set forth in the report, hereto appended, of Lieut. George T. Balch, the officer to whom that duty was assigned. Additional supplies have also been furnished, during the year, for the armament of the permanent fortifications; they consist of 30 sea-coast and garrison cannons and 134 carriages of different calibers and kinds. There has not been sufficient time, since the authorization of experiments to test gun metals, to do more than make the preliminary preparations for carrying out these experiments. No results can, therefore, be now reported. The work is in hand, and in a good state of progress. In my last report I referred to the difficulty of keeping wooden gun carriages in a serviceable condition at ungarrisoned posts. Most of our permanent fortifications are usually without garrisons, and must continue so, unless there should be an adequate artillery force kept permanently at them. It is a question whether the maintenance of such permanent garrisons, independently of its other obvious military advantages, may not be a measure of true economy, by saving more, in the preservation of the armament and other public property at the permanent forts, than will cover the cost of the maintenance of an adequate artillery force at each. The substitution of wrought iron for wood as a material for gun carriages has been the subject of experiment. A carriage of iron has been devised and constructed, and is now undergoing all the various tests to determine the fitness or otherwise of the material and device, for the proposed purpose. So far it appears to answer well; but additional experiments are requisite to give such assurance as will authorize its adoption. I do not think, however, that any method can be devised so proper and efficient for the care and preservation of the permanent forts and their armaments, and at

the same time so advantageous on military consideration, as the permanent maintenance of artillery troops at each, in such numbers at least as may be sufficient to keep in good order the valuable public property thereat. It is obvious that no structures, however faithfully made, or of whatever material, can be left uncared for and unlooked after without suffering damage; and it becomes a duty to inquire whether the economy which has sent our heavy artillery from their appropriate duties, to supply the inadequacy of the strength of other arms of service, may not have been the cause of loss, in the end, greater than any temporary saving of expenditure can justify on principles of true economy.

Every day's experience is more and more convincing of the necessity of a national manufactory of cannon and projectiles. The precautions which we are now compelled to adopt to insure, as far as possible, the use of none but safe and reliable material for the fabrication of iron cannon involve the same cost at each of the private foundries as would be required for a national armory of this kind. When multiplied by the number of private foundries where government cannon are made, and where the materials and manufacture have to be severally tested, the result shows a cost which forms of itself, exclusively of other manifest considerations, an ample argument in favor of a national foundry. This is a matter which has been fully investigated and frequently considered by Congress, and I believe there has been little, if any, diversity of opinion in regard to its expediency. The only question which has caused delay in the execution of the measure is the location of the national armory for cannon and projectiles. There are undoubtedly many places, in different sections of the Union, which possess advantages for an establishment of the kind. The requisites are abundance of material (chiefly coal and iron), easily and cheaply accessible, healthfulness of the locality, and facilities for the transportation of heavy articles to and from. Any place possessing these requisites will answer the purpose; and, other things being equal, a central location in regard to the different permanent fortifications of the country would be preferable.

ORDNANCE, ORDNANCE STORES AND SUPPLIES.

There has been expended from this appropriation, during the fiscal year, the sum of \$228,248.79, and the principal articles procured by purchase and by fabrication at the arsenals are as follows, viz: 1 12-pounder bronze gun; 1 stone mortar; 23 field carriages, caissons, and traveling forges; 1 cohorn mortar bed; 200 Sharps' carbines; 310 repeating pistols, different patents; 100 6-pounder cannon balls; 62 8-inch columbiad and mortar shells; 304 32 pounder shells; 338 24-pounder spherical case shot; 800 infantry cartridge boxes; 799 infantry cartridge-box belts; 1,500 infantry waist belts; 1,367 bayonet scabbards, with frogs; 739 rifle sword-bayonet scabbards; 20 rifle sword waist belts; 777 carbine slings; 1,170 carbine swivels; 875 sword and saber belts; 1,495 sword knots; 425 revolver holsters; 550 sets horse equipments; 4,331 saddle blankets; 170 saddles; 551 rounds of fixed ammunition for field artillery; 2,963,112 cartridges for small-arms; 7,902,500 percussion caps for small-arms; 4,986,500 Maynard's primers; 258,600 friction primers; 10,000 locks and breechpins.

The arms, equipments, ammunition, and other ordnance supplies which have been furnished for the regular service, during the fiscal year, are specified in statement C, hereto annexed.

With a view to ascertain the best pattern of horse equipments for the military service, this department has caused to be manufactured and

put in service during the past year several hundred sets of the pattern selected by a board of officers of the mounted regiments, and of the pattern known as Hope's saddle, and much used in Texas. Three hundred sets of Jones's pattern have also been ordered, and are now in process of fabrication. The use of these and the Grimsley equipments in actual service will afford the means of comparing their relative merits, and enable us to select for adoption the whole, or such parts of either, as experience may show to be the best adapted to the requirements of the service.

ARMING AND EQUIPPING THE MILITIA.

The expenditures from this appropriation, during the past fiscal year amount to \$134,529.40. The principal articles procured by purchase and by fabrication at the arsenals are as follows, viz: 31 6-pounder guns; 12 12-pounder howitzers; 6 6-pounder carriages; 24 caissons; 962 Colt's belt pistols; 1,000 cavalry sabers; 1,000 artillery swords; 100 cadet's swords; 6,505 infantry cartridge-boxes; 6,600 infantry cartridge-box belts; 2,842 bayonet scabbards with frogs; 8,865 gun slings; 8,163 waist belts for infantry and riflemen; 5,896 cap pouches; 1,140 rifle sword waist-belts; 1,692 rifle pouches; 972 rifle cartridge-boxes; 1,760 rifle pouch, and flask belts; 200 carbine cartridge-boxes; 2,630 saber belts for cavalry and horse artillery; 1,000 saber knots; 712 carbine slings; 1,737 pairs of holsters; 1,320 sword belts; 750 waist belts for sergeants; 2,000 copper powder flasks.

The apportionment of arms to the several States and Territories, according to law, and the supplies which have been furnished for the use of the militia during the past year, on requisitions of their governors, are set forth in the accompanying statements, marked A and B.

The work on the armory for the District of Columbia has been carried on, during the year, in accordance with the law and the appropriation. The building, except some requisite fixtures, has recently been reported ready for occupancy. It will be turned over for the use of the District militia as soon as these fixtures are put up, and arrangements for their care and preservation made.

NATIONAL ARMORIES.

The expenditures at these armories, during the fiscal year, have been as follows:

	Harper's Ferry Armory.	Springfield Armory.	Total.
Manufacture of arms, appendages, tools, &c., and purchase of materials for the same	\$137,416 74	\$163,275 99	\$300,692 73
For repairs, improvements, and new machinery, in- cluding new buildings, &c.	45,081 91	191,878 96	236,960 87
	182,498 65	355,154 95	537,653 60

The reports of the superintendents, accompanying this, specify, in detail, the work which has been done at each of the armories. At Springfield Armory the fabrication of the new-model rifle musket, to its finished and assembled state, had commenced before the end of the fiscal year, and 2,015 of these arms had been completed, as also 3,016 of the rifled pistol carbines. None of the new-model arms had then been completed at Harper's Ferry Armory. Since that time the manufacture of these

finished arms has been going on at both armories, at the average rate of 765 per month at Springfield, and 420 per month at Harper's Ferry. Besides this work, a considerable number of the smooth-bored arms, of former models, have been rifled and sighted for long ranges, and appendages and component parts of the new models have been prepared. Additional machinery and other facilities for manufacturing have also been procured; and there is no want of material or machines, if there be proper management, for the requirements of the military service.

ARSENALS.

There are in the United States 24 arsenals, including ordnance depots in Texas, New Mexico, and Washington Territory. Measures have been adopted for securing sites for the arsenals of deposit to replace these temporary depots. Since the acquisition of the site for the arsenal in Texas, such representations have been received as to render it proper to make further examinations before commencing the construction of buildings, in order to ascertain whether there may not be a much better position available in the vicinity than that which has been selected, and which is represented to be, in some respects, inconveniently situated. The site for the arsenal in New Mexico is on public land, which has been selected and reserved for the purpose. There has not been time, since the selection and acquisition of this site, to commence building operations. That in Washington Territory is to be located on the public land adjoining the military post of Fort Vancouver. As soon as the requisite information can be obtained to designate the position according to official survey, its reservation for the arsenal site will be requested.

The amount expended from the appropriation for arsenals, during the year, was \$76,436.78. The expenditures have been applied to the objects specially designated in the estimates on which the appropriation was based. They include repairs and preservation of public buildings, fences, wharves, &c., the erection of new and additions to old buildings, and all improvements of a permanent character. The statements of operations at the principal arsenals, reported by their commanding officers, and hereto appended, are referred to for a more detailed account of the work done under this head. The estimate for the next fiscal year is based on special estimates, rendered by the commanding officers of the different arsenals. These estimates have been carefully examined at this office and only the most important objects included in the general estimate prepared here.

Respectfully, your obedient servant,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JOHN B. FLOYD,
Secretary of War.

[Extracts from Annual Reports of Secretary of War, for 1857.—Ex. Docs. first session Thirty-fifth Congress, vol. 2, part 2, p. 9.]

The staff.—Attention has been repeatedly called to defects in the organization of the army, and to various details in reference to several of parts. As its these evils increase with time and practice under them, I must again bring them before you.

The basis of our existing system is the British army as it served in the colonies before the Revolution, retaining many of the defects, since corrected in Great Britain, under the experience and necessities of long

wars. Provisions inconsistent with the existing system, copied from other nations, and partial legislation designed for particular interests, have augmented these evils, and we have committed the fault of adapting our fundamental organization to a time of peace, instead of basing it on the exigencies of war.

One of the greatest errors of detail is the separate, independent character of our staff corps. This removes them from their proper position as aids or assistants to the commander, and constitutes them his equals. It contracts the sphere of observation and experience, and thus unfits the officer for change or advancement, and begets an accumulation of precedent and prerogative at war with the vital principle of military organization—the inviolable and undivided authority of the head. He is bound, as they are, by the law, and his construction of it should govern them, not theirs him.

Another defect is the uncertain and ill-defined rights of brevet rank. We have adopted the word, but not its signification, from the English rule, and applied it to circumstances not contemplated or existing when first established. Repeated decisions and imperfect legislation have only increased the evil by inviting new discussions and adopting new constructions.

We have retained another fault abandoned, at least practically, in almost every service among civilized nations, even the most aristocratic and monarchical. This is promotion by seniority. Age and experience should bring excellence; but the test lies in the actual possession of the latter, and not merely in the circumstances which it is assumed should produce it. Seniority, with the requirements essential for position, ought certainly to give precedence; but without these, that dignity and respect which belong to rank and command can never be secured.

All that has been urged in favor of retaining it with us is the danger of political or personal favor governing a selection. There may be danger from this source, but, by the rule of seniority, the *worst* officer of any arm *must*, if he lives, come to be one of the most important and responsible officers under the government—the colonel of a regiment. By selection, it is possible that the very best may not always be chosen, though the chances are in favor of this hypothesis; but certainly the very worst never will be, and this is surely a gain on the present rule.

To correct these and other evils, I would urge so to provide by law for the construction of the regiments of horse, artillery, and infantry, as to approach them, as far as our circumstances require, to the practice of all nations long experienced in war, and so as to admit their contraction for peace and their re-expansion in war without altering this basis.

This can be done without any increase of officers or men, or augmentation of expense, by merely arranging those already in service and the companies of each corps to suit the end proposed.

To place the staff in proper relation to the rest of the army, the law should collect all the officers doing that branch of duty into one corps, to be assigned by authority of the President to such duties as each may seem to be best fitted for, securing to each the rank and relative position he now holds. But, as some staff corps are confined to duties requiring special instruction and long experience, their separate organization might be retained.

A general provision dispensing with the staff bureaus and giving the President authority to regulate the duties on the principles above stated, and to transfer, when necessary, officers to and from the line and staff, would restore the institution to its proper effectiveness. Thus, the staff near the War Department, representing the authority of the constitu-

tional commander-in-chief of the army and navy, would bear the same relation to him as the staff attached to a corps in the field have to the colonel or general who commands it.

* * * * *

Much has been said as to the propriety of separating the purchase of stores and supplies, and all moneyed accountability, from the officers proper of the army.

This system has been adopted in France, but is objected to as giving to the civil officers thus employed an immunity from military control, injurious, if not fatal, to the interests of the service. This objection would be fully met by providing that this class of officers, without receiving military rank, or being entitled to command, should be amenable to military tribunals, and thus act under the same responsibility that the disbursing officer now does.

It is certain that an officer looking forward to military advancement and fame is tempted to incur risks on the field of battle, the fatal issue of which might ruin his family, and some of his friends, and his own reputation, through the disorder which his sudden death might bring into his pecuniary affairs.

These proposed changes would restore our military system to that simplicity which would render such amendments as experience might recommend easy, and well adapted to existing circumstances.

* * * * *

National foundry.—The importance to the public service of establishing a national foundry has been so often brought to the attention of Congress by my predecessors, that nothing but a conviction of its great consequence to the public and private interests of the whole country encourages me to mention it again.

A well-managed national foundry would very speedily develop and establish facts which would add immensely to our national wealth. It is scarcely to be credited that, with the infinite variety of iron ores and their boundless extent in the United States, we should not have yet discovered a mine capable of making the very best gun, or, if such be discovered, that there are no means by which the public service can be benefited by it; but such is the fact.

A national foundry would serve as a great laboratory at which the qualities and value of metals throughout the whole confederacy would be tested and fixed. Every variety of iron, with its especial adaptation to particular uses, would, in a few years, be familiarly known to the country, and individual enterprise would be saved in experiments many times the amount which the works would cost, whilst a great national branch of industry might, by this means, receive a legitimate and efficient encouragement.

There is but little doubt that many American iron ores are equal at least to those of Norway, and yet the national armories are driven by necessity to purchase from abroad the Norwegian iron for the manufacture of small arms. Choosing to have the best quality of arms, we must go abroad for the best quality of iron. A national foundry would soon teach to improve the manufacture of iron, and we would be saved the mortification of bringing iron from abroad, and the money, too, we have to pay for it.

The cost of heavy guns would presently be diminished, and their quality would be, undoubtedly, very materially improved.

It therefore appears to me that every consideration of sound policy and economy demands the establishment of a national foundry, which I accordingly respectfully recommend.

Ordnance.—The report of the Chief of Ordnance will explain in detail the condition of that most important branch of the public service. Its general operations have, in the main, been satisfactory. The manufacture of small-arms at the two national armories continues with very much the same results as heretofore. The arms fabricated are of the most superior quality, although it is more than questionable whether the rifled or grooved musket is any improvement whatever upon the musket of the pattern adopted in 1842 for the use of infantry in the field.

The valuable property at Baton Rouge belonging to the government is being greatly injured by reason of the decayed condition of the wooden enclosure, which was constructed many years since. It is, therefore, advisable that some provision be made for building a substantial iron fence, and thereby preserving the buildings and grounds, which are now subject to serious damage and constant depredation.

I would also advise that, for the purpose of still further improving the grounds, authority be given to purchase a jut of land near the principal building, and to sell a piece of land at the extreme end of the property, of little value for government purposes. For these objects a small appropriation will be required.

As a school of practice for the artillery is established at Fort Monroe, which is much needed by the service, it is very desirable that one or two small tracts of land in the immediate vicinity of the post, and directly affected by the target firing, should belong to the government; therefore authority ought to be given to purchase this land, and thus remove all obstructions to the satisfactory establishment of the school at this important post.

* * * * *

Breech-loading arms.—The appropriation for the purchase of the best breech-loading rifle has been nearly all expended for arms of different construction—some for experiment in the field, thought to be far the best test, and some have been purchased for use in the army, having been already approved by trials in the hands of troops in actual service.

I think there existed no arm of the sort at the time the appropriation was made which has not been materially improved since, and much of this improvement has taken place since the trial made of this sort of arm last summer, at West Point, under the direction of a board of officers appointed for the purpose. The variety of breech-loading arms is extremely great, and the ingenuity exhibited in constructing them highly creditable. Some of these arms are best for one sort of service, whilst others answer best for another, and the purchases made have been determined with a view to this object. Improvements are still going on in the construction of this particular arm, and, with some further encouragement, valuable results will no doubt be attained.

Statement of the muskets and other small-arms altered from flint-lock to percussion, and of the field-guns, howitzers, and mortars unsuitable for the United States service, now on hand. (See letter to the Secretary of War, 14th August, 1857.)

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Flint arms altered to percussion.

Brass guns, howitzers, and mortars.

Iron guns, howitzers, and mortars.

Arsenals where deposited.

Muskets.	Rifles.	Pistols.	24-pound guns.	18-pound gun.	12-pound guns.	6-pound guns.	8, 8, and 4 pound guns.	3 and 2 pound guns.	8-inch howitzers.	24-pound howitzers.	12-pound howitzers.	2½, 2, and 3½ inch howitzers.	Swivels.	Cohorns.	10-inch stone mortars.	13-inch mortar.	10-inch mortars.	Total brass pieces.	18-pound guns.	12-pound guns.	9-pound guns.	6-pound guns.	2 and 3 pound guns.	24-pound howitzers.	12-pound howitzers.	10-inch mortars.	8-inch mortar.	Total iron pieces.	
Allegheny	1, 633	3, 526	3, 234									1						1				1						1	
Apalachicola																			3									1	
Augusta												2	3					2				6		2				1	
Baton Rouge	8, 326	1, 385	2, 040																										
Benicia	649																												
Champlain										4									9									1	
Charleston														3														1	
Detroit																			2									1	
Fort Monroe																													
Frankford	6, 993																		39	10								13	
Kennebec	24, 313				5	2	2	11	3	1	11	4																6	
Little Rock	25																		1									1	
Mount Vernon	1, 968																		2									8	
New York	884			2																18	8							29	
North Carolina	4, 817																											6	
Pikesville																												7	
San Antonio																												5	
San Louis	27, 509	3, 018	2, 438	1															2									1	
St. Louis																													
Vancouver	2, 493																												
Washington	25, 285									1	2								21									1	
Watertown	18, 442		2, 948																7									9	
Watervliet	45, 517		4, 160																49									3	
Springfield	100, 101																		1									2	
Total	268, 955	6, 931	14, 120	2	1	9	53	8	12	2	16	2	7	4	14	4	1	4	139	28	14	2	79	3	14	4	5	1	150

[Indorsement on synopsis of inspections of unserviceable ordnance and altered small-arms.]

ORDNANCE DEPARTMENT,
November 5, 1857.

Respectfully submitted to the Secretary of War, with the recommendation that the property named in the above list be sold, with the exception of such of the brass guns as are trophies, gifts of foreign nations, and single samples of old models, and all the altered muskets that are fit for service. These muskets would be perfectly serviceable in a struggle with a foreign nation, and are now distributed advantageously to meet such a crisis; their storage costs nothing, and their preservation but a trifling sum. By being thrown into the market in mass at this time, there would be a very great sacrifice. I would, therefore, respectfully suggest that these arms should be disposed of periodically, say, by annual sales, commencing with the third or most inferior class, each sale to consist of a number equal to double the amount of the annual accumulation of muskets in the arsenals by the manufacture of those of the model of 1855. By this mode of procedure we would gradually rid the service and our arsenals of old-model arms without reducing our store much below the dictates of prudence.

The accompanying reports of the inspecting officers, numbered 1 to 17 in red ink, will exhibit in detail the condition of the property referred to.

H. K. CRAIG,
Colonel of Ordnance.

CIRCULAR LETTER TO OFFICERS OF ARTILLERY AND ORDNANCE.

GENTLEMEN: It is believed that there is a unanimity of opinion that the artillery of our army is in a very inefficient condition.

The artillery officers on duty at West Point—representing all the regiments in service but the 3d—have held several meetings for the purpose of devising some means by which the efficiency of this important arm of the national defense might be improved. They respectfully submit to all concerned that the inefficiency of the artillery cannot to any great degree be promoted by any means whatever, so long as the Ordnance Department is a separate corps; so long as the artillery is organized as infantry, armed as infantry, and drilled as infantry, and therefore liable to be continually assigned to infantry duty; so long as the artillery is without a chief; and so long as the artillery is more numerous than the country will support *as artillery* in time of peace.

They have therefore submitted through the commanding general a memorial to the Secretary of War on the subject and a communication to the General-in-Chief, suggesting a plan for organizing from the present ordnance and artillery two regiments of infantry and a corps of artillery, by which plan it is believed that neither the rank nor prospects of any officer in service would be prejudicially affected. This memorial and letter they herewith inclose and respectfully commend to the consideration of their brother officers.

In suggesting a proposition of so great importance to all officers of both artillery and ordnance, they are aware that the remark may be made that the plan emanates from subaltern officers, and therefore is entitled to less consideration than if it had originated with officers of

high rank. To this they would reply, that the views of several officers of the rank of captain and major were obtained and incorporated in the plan, to as great an extent as was practicable, and that the plan has been submitted to several officers of high rank and distinction in both artillery and ordnance, and that thus far few objections to it have been advanced, while those officers have generally agreed that the plan is a practical one; that by it provision is made that the ordnance duties would without doubt be as efficiently performed as they are at present, and that the efficiency of the artillery would be greatly increased.

To ordnance officers the remark of a distinguished field officer of that department may be repeated: "That the ordnance would have no reason to oppose the proposition, for they would certainly lose nothing by it—that all the risk was run by the artillery."

To artillery officers it is submitted that in the present state of things the condition of the artillery, as respects promotion at least, is worse than that of any other corps in the army, and that both those transferred to the infantry and those retained in the corps of artillery could not be otherwise than benefited.

It is respectfully asked of all those that receive a copy of this letter, that if they approve of the memorial and proposition, they will sign each and return them as soon as convenient to the adjutant of the Military Academy. Should they object to either, it is requested that they will nevertheless return them as above as evidence of having received them, and that they will at the same time state their objections.

Unless *serious* objections present themselves, it is submitted that it would be better not to suggest any change in the papers, that the expression of opinion concerning the causes of the present inefficiency of the artillery and the best means for removing them may be as nearly unanimous as possible.

Copies of the memorial and letter to the General-in-Chief will be sent with this circular letter to each post where either artillery or ordnance officers are known to be stationed.

It is requested that all the signatures at one post be on the same copy, that the whole number of copies to be sent to the Secretary of War and to the General-in-Chief may be no greater than is necessary.

WEST POINT, November 15, 1857.

To Brevet Lieutenant-General WINFIELD SCOTT,
Commander-in-Chief of the Army.

The undersigned, officers of the army, beg leave to submit to the General-in-Chief, that the artillery of our army is far from being as efficient as its friends would desire to see it, and as the country has a right to expect it to be.

With the causes of this inefficiency the General is doubtless familiar. It is respectfully submitted that their removal can be effected only by an entire change in the organization, which would require the action of Congress.

The undersigned have therefore prepared a memorial on the subject, to the Secretary of War, which they have the honor to submit to the General-in-Chief, with the request that he will transmit it to the honorable Secretary.

And with the permission of the General, they would respectfully suggest the following proposition, as one which, if adopted, would be likely

to secure to the country an efficient artillery corps, without prejudice to the rank or prospects of any officer of the army.

The propositions suggested are as follows:

1st. That the present Ordnance Department and artillery regiments be broken up, and that a list of the officers of the two corps be formed in the order of the dates of their commissions.

2d. That a board of competent officers be appointed to decide, first, whether any of the officers of this list are permanently incapacitated from doing duty, and if there be any such, that they be placed on a reserved list; and next, that the board select from the officers thus arranged, two colonels, two lieutenant-colonels, four majors, twenty captains, twenty first-lieutenants, and twenty second-lieutenants, to constitute the officers of two regiments of infantry to be organized as the other regiments in service. The remaining officers to constitute a corps of artillery, to be organized as follows:

1 brigadier-general, as chief of artillery; 2 colonels, 4 lieutenant-colonels, 8 majors, 56 captains, 56 first lieutenants, 28 second lieutenants. And the following artillery men: 112 sergeants, 112 corporals, 56 musicians, 56 artificers, 1,650 privates.

And if, after deducting the officers for the infantry regiments and those to be placed on the reserved list, the number of officers remaining in any grade be greater than that proposed, that promotion stop to such grade, until by ordinary casualties, the number be reduced to that proposed.

It is proposed that there be no regimental or company organization, but that battalions, companies, or smaller detachments be formed and officered as may be required, excepting that eight light batteries be organized as at present.

Promotion to take place by seniority, excepting that the chief of the corps be selected; but no officer to be promoted to a grade below that of major, without having passed a satisfactory examination.

An artillery board to be detailed from the field officers, to perform the duties of the present Ordnance Board, and to examine lieutenants for promotion and recommend captains for the command of the light batteries and for arsenal duty; no regard being paid to rank in recommending these officers, reference being had only to their fitness for the duties to be assigned to them.

These captains so assigned to duty not to be removed from these positions without cause.

Fifty-six captains are proposed, that there may be twenty-eight for arsenal duty, eight for command of light batteries, and twenty for the heavy artillery service.

Fifty-six first lieutenants are proposed, that in time of war there may be two to each captain's command, and that in time of peace, by having but one to each captain's command of heavy artillery, these officers may serve in rotation on heavy artillery duty, light artillery, and as assistants on arsenal duty; and that the corps may be able to furnish such other details as may be needed—as for example the Military Academy, where from twelve to fifteen artillery officers are constantly required.

Twenty-eight second-lieutenants are proposed, that there may be one to each captain's command of light or heavy artillery.

The number of enlisted artillery men proposed is such as to give nine hundred privates to the heavy artillery, five hundred to the light batteries, and two hundred and fifty for duty at arsenals; and to each captain's command four sergeants, four corporals, two artificers and two musicians.

By the proposed plan, an officer on entering the service as a second lieutenant, would serve with troops on either light or heavy artillery duty while he remained second lieutenant; and would thus have an opportunity of becoming familiar with the routine of service.

On being promoted to a first-lieutenancy, he would serve—say two years with a light battery and four years as an assistant on arsenal duty, and then return to the heavy artillery, a much more efficient officer it is believed, from the experience he had had on arsenal duty.

On being promoted to a captaincy, if he had shown himself peculiarly fitted for duty at arsenals, he would be recommended by the artillery board for that duty, or if for the command of a light battery, he would be assigned to such a command. If not specially qualified for either of these duties, or he had directed his attention principally to heavy artillery, that would be the branch of service to which he would be attached while a captain.

By the proposed plan the arsenals and depots of supplies would in all cases be in the charge of officers of at least the rank and experience of a captain.

By the present system of appointing cadets to vacancies in the Ordnance Department, many are likely to be appointed, and it is believed have been appointed, who have no taste for its duties.

By the proposed system no captain would be assigned to arsenal duty, who had not shown peculiar aptitude for it while serving as a lieutenant; the captains on arsenal duty would be virtually as distinct and separate from the other artillery officers as are the present ordnance officers from the artillery; and they would be permanently on arsenal duty, and thus all the advantages of the present system secured.

It is believed that the unity of interest that would exist throughout the corps would in a great degree promote the good of the service.

The following table shows the effect the proposed change would have upon the officers now in service, without taking into account the effect of the reserved list:

TABLE.

Present organization. | Proposed organization.

	Artillery.	Ordnance.	Total.	Artillery corps.	Infantry regiments.	Total.	Surplus.
Brigadier-general.....				1		1	
Colonels.....	4	1	5	2	2	4	
Lieutenant-colonels.....	4	1	5	4	2	6	
Majors.....	8	4	12	8	4	12	
Captains.....	48	17	65	56	20	76	
First lieutenants.....	96	12	108	56	20	76	20
Second lieutenants.....	48	2	50	28	20	48	2

Twenty vacancies would thus have to occur among the first lieutenants and two among the second lieutenants, before promotion could take place to those grades.

The undersigned would respectfully assure the General-in-Chief that in proposing the above plan, they have no object in view but the promoting of efficiency of the artillery, and they beg leave to ask that he will give the proposition his careful consideration.

All of which is respectfully submitted, by your obedient servants.

WEST POINT, N. Y., November 15, 1857.

To the Honorable JOHN B. FLOYD,
Secretary of War :

SIR: The undersigned, your memorialists, officers of artillery in the U. S. Army, would respectfully submit: That previous to the year 1821, the duties now devolving upon both the artillery and ordnance of our army were performed in various ways. At one time the artillery seems to have been charged with all that could appertain in any way, to the manufacture, procurement, or use of heavy ordnance upon the land; at another, a separate corps, called ordnance, has existed, charged with the manufacture or purchase and preservation of those munitions which the artillery would need in the event of war, in the same manner that the Quartermaster and Subsistence Departments now furnish its clothing and provisions. The titles of the officers composing these corps have at the same time been the subject of change. They are at first known as *commissaries*, since civil titles which closely assimilate them to the other supply departments of the army. Later the law grants them the military designation of colonel, captain, &c.—their duties being the same as before.

The law of May, 1821, abolished this corps, merging its duties with those of the artillery, and organized the artillery for the peace establishment into four regiments, a light company being attached to each, and with an additional captain in each for ordnance duty; the President being authorized to select such number of lieutenants for the same duty as he might deem proper.

This organization continued in force till 1832, when the Ordnance Department, as separate from the artillery, was re-established, with the same duties and obligations as prescribed by the laws of 1812 and 1815. From that time to the present, the essential organization of neither ordnance nor artillery has been changed by law.

We have then, as your memorialists believe, in contemplation of law, an Ordnance Department charged with the manufacture, inspection, and proving of all kinds of ordnance, shot and shells, gun carriages, and other munitions, and the preparation of all kinds of ammunition, and the preservation and delivery of the same where they may be required—duties of an entirely civil character, "*in no sense whatever military*"; and the officers of the corps as essentially non-combatants as any in the army—an interpretation of law, in which they are sustained by *Paragraph 14, Army Regulations*, which declares that these officers shall in no case command troops unless upon the special assignment of the President.

We have also a corps of artillery organized by the law of 1821 into four regiments, two companies in each being at present light companies.

The duties of the artillery begin where those of the ordnance cease. It receives its guns, equipments, and ammunition from the ordnance, and is then responsible for the preservation of this material, the most effective use of the same during war, the repair upon the spot of broken carriages and the replacement of disabled guns. On the march, the duties of the artillery involve the transportation of its material, including the passage of streams and difficult ground, the landing from ships upon a hostile coast, and the management and transportation of artillery in boats—duties of great responsibility, and a proper knowledge of which can only be acquired by careful study of books and much actual experience.

This being the intendment of the law, your memorialists would respectfully represent that the present organization of the artillery and the practice of the War Department, founded on the immediate necessities

of the country, are such as must defeat the objects of the law, and destroy the usefulness and efficiency of this arm.

Organized into regiments and equipped as infantry, artillery companies are detailed upon every emergency to do infantry duty on the frontier; and so frequent and long continued are these details, that this temporary duty has become the rule and not the exception; and it not unfrequently happens that a so-called *artillery* regiment for years serves entirely as infantry, and this too under the most unfavorable circumstances for the preservation of discipline and efficiency; the different companies being often in widely separated districts of country.

In those cases in which forts on the seaboard are garrisoned by the artillery, a few guns are turned over by the Ordnance Department for the use of the troops, and to mount and dismount these, to go through the loadings, and fire a few shots twice a year, constitutes the total of artillery duty. Under such circumstances, from very dearth of employment, the infantry drill, in which under the present organization, the artillery companies are required to be proficient, becomes the principal occupation.

The advocates of the present system say that the artillery should not be taken from the seaboard; that it should be organized into schools of practice. The answer to this is, that our government, with all its urgent calls for troops, will not maintain *unemployed* a body of men which could be useful as infantry, merely because they have the name of artillery. And again, schools of practice, such as have been contemplated, could not afford practical instruction on half the subjects with which an intelligent artillery officer should be acquainted—and if they could, at what useless waste of material and at what enormous expense would it be done; whilst the officers of ordnance are daily becoming familiar with these subjects in the ordinary prosecution of their duties.

Again, your memorialists would represent that to make the artillery efficient as a scientific corps, there is needed a *chief of artillery*, to exercise a general supervision over the entire arm, to direct the efforts of all its members, so as to make the corps most useful to the country, and to communicate its necessities and defects directly to the government.

It will be admitted by all that the present system has failed to furnish an efficient artillery. It is believed that it must likewise fail to give anything like an efficient body of infantry. An artillery officer, if he feels proper pride in his own arm, will feel out of position whilst doing infantry duty, and with such feelings it is impossible for him to infuse into his men that *esprit de corps* which is the essential of a good soldier, and which he would take pride in developing if he belonged to the infantry arm.

Again, it is but natural that an artillery officer, although serving cheerfully upon any other duty, when not required as an artillerist, should expect when such duty is to be performed, that it should be given to officers of his own corps, and that he should feel justly humiliated when officers of another corps are called upon to perform artillery duty; as the engineers would feel degraded were the fortifications of our coast entrusted to a quartermaster and they employed upon a campaign against Indians. Yet this is one of the evils of the regimental organization. On a campaign the officer in command has artillery acting as infantry, and needs artillery proper. Instead of giving guns to one or more artillery companies, thus weakening his infantry force, he will organize a new battery, and find some ordnance officer to command it. This was done during the Mexican war, when the artillery certainly did enough good service to merit consideration, and the same will always occur,

whenever a campaign has to be conducted under the present organization; notwithstanding that the law only authorizes the enlistment into the Ordnance Department of mechanics and laborers, and notwithstanding that the regulations declare that an ordnance officer shall command troops *only* on assignment by the President. It is an evil of the system.

Your memorialists then would respectfully present the following as reasons why the present organization of the artillery should be changed:

1st. That it wants a single head; which is necessary to give unity, harmony, and efficiency to the corps.

2d. That it has failed so to conform itself to the established policy of our government as to give a good and well instructed corps of artillery.

3d. That by depriving the artillery of all participation in the fabrication of ordnance and ordnance stores, it deprives it of a most valuable source of information, and as your memorialists believe, only *feasible* school of instruction.

4th. That its outline of artillery duty is so meagre, as to afford no adequate employment to officers of higher grade than captain, in time of peace, and in time of war, could only do so upon very extended operations.

5th. That it encourages the employment of the artillery as infantry, which is the principal cause of the present low state of the artillery.

6th. That it encourages the employment of ordnance or other officers for military operations, when artillerists should be employed, to the destruction of that pride of corps which it is so necessary to foster and encourage.

And your memorialists would further represent that in their opinion, all these defects of organization may be readily remedied, and a corps of artillery established of the highest character and efficiency, without loss of time, without additional expense to government, and without prejudice to the rank or prospects of any officer of either ordnance or artillery.

Without entering here into the minute details of that plan of organization which to your memorialists seems best calculated to accomplish the purpose desired, they would simply enumerate those general features which they believe must attach to any good organization.

They respectfully suggest:

First. That the honorable Secretary of War take such legal steps as may be necessary for uniting the artillery and ordnance arms of the service into one corps, in which all officers shall take rank according to present commissions, thus forming one body of artillery; and that it be placed under the command of an officer having the rank of brigadier-general.

This union would give to artillery officers the benefit of the instruction to be derived from doing ordnance duty, and would afford to field officers of artillery, both during peace and war, employment suited to their rank and position, whilst to officers of the present Ordnance Department it would afford the chances of more speedy promotion, and give them in time of war an opportunity for seeking that distinction which can be obtained only in the command of troops.

Second. That no arms or equipments of any kind be placed in the hands of artillery soldiers, that would enable them to serve either as infantry or cavalry.

Third. That if the body of artillery thus organized be larger than it is the desire or policy of the government to maintain exclusively as artillery, that a maximum peace establishment, to be determined upon by Congress, be fixed upon, and that the artillery be reduced to this stand-

ard—the remainder being organized into one or more regiments of infantry.

If it be objected that a diminished artillery force would be inadequate in the event of war, to supply the wants of our extended coast, it may be assumed that a well instructed artillery would always admit of expansion, every lieutenant being competent on emergency to organize, instruct, and command a battery; and even did it not, it is submitted whether it would not be better to create upon the occasion the required additional force, by selection from among the young, active, and intelligent officers of the army, than to keep up during long years of peace a large force, with its officers growing old doing infantry duty and gaining no experience whatever in artillery.

Fourth.—Your memorialists would most earnestly request that a *rigid system of examination* be instituted for all subalterns of artillery, and that no officer be admitted into the corps or promoted to any grade beneath that of major, without having passed a satisfactory examination before a board of artillery officers. It would thus be in the power of government, having given every facility for improvement, to lop off those who neglected to avail themselves of their advantages.

Before finally disposing of this subject, the undersigned request that the honorable Secretary will give his attention to a plan of organization that has been submitted to the General-in-Chief of the army, and which will, with his indorsement, be laid before the War Department. It is a plan that has received the approval of many officers in both corps.

All of which is respectfully submitted by your obedient servants.

[174 W. D., 1858.]

FORT UNION DEPOT,
November 6, 1857. .

SIR: I have the honor to state that the general commanding the Department of New Mexico has been applied to for ammunition to supply the organized militia of the Territory, and desires that a few thousand rounds of musket and rifle ammunition may be furnished from this depot, in order to meet a present case of necessity.

The general is informed that the Territory of New Mexico has received the quota of arms, without a single round of ammunition therefor; hence he is disposed to aid in the offering of the militia in protecting the settlements.

I have informed General Garland that the state of the public supplies in depot will allow of the issue, if it can be made in conformity with law and regulations.

Your advice on the subject is respectfully asked for.

I am, sir, very respectfully, your obedient servant,
W. R. SHOEMAKER, M. S. K.,

Commanding Depot.

Col. H. K. CRAIG,
Ordnance Department, Washington.

[1st indorsement.]

ORDNANCE OFFICE,
December 22, 1857.

Respectfully submitted to the Secretary of War. The law of April 23, 1808, provides for supplying the militia of the States and Territories with "arms and military equipments"; and under this law and the regu-

lations made in pursuance thereof, *ammunition* has not been furnished. I think it would be well to authorize the issue of ammunition in special cases of frontier States and Territories, where it may be urgently required, and where it cannot be obtained except from the government arsenals, and may be supplied thence without injury to the military service of the government. I therefore recommend that issues of ammunition, so restricted, may be authorized, if, in your opinion, the provisions of the law of 1808 will warrant it.

H. K. CRAIG,
Colonel of Ordnance.

[2d indorsement.]

The department has no authority to order the issue of ammunition under the law of 1808.

J. B. FLOYD,
Secretary of War.

WAR DEPARTMENT, *March 15, 1858.*

[Letters to W. D., vol. 12, p. 76.]

ORDNANCE OFFICE,
Washington, January 14, 1858.

SIR: On the letter of Mr. Robert Hale, asking compensation for his improvements in war rockets, I have the honor, agreeably to the indorsement referring the letter to this office, to report:

Hale's war rockets were first brought to this country in 1816, by a Mr. J. B. Hyde, who had purchased the invention from Hale. After trial by a board of army and navy officers, it was determined by the Secretaries of War and of the Navy, acting jointly, to purchase from the proprietor full instructions for making these rockets, and the sum of \$20,000, one half by each department, was paid for the same. The war rockets, which were made according to these instructions, proved good on first trial, but were found to deteriorate and become unfit for service after being kept a few years. In 1851, Mr. William Hale, jr. brought to this country what he called an improved stand for firing Hale's rockets, and also some rocket cases. This stand was tried, and on a report of the trial the Secretary of War authorized the payment to William Hale, jr., of \$770 in full for the stand, the 150 rocket cases he had brought with him, and his expenses as per bill rendered by him, which payment was made to Mr. Hale.

In 1855 Mr. Robert Hale came to this city, and stated that important improvements in Hale's rockets had been made in England, which he was authorized to submit to the United States Government, and that he had brought also an improved rocket stand, and some rocket cases made on the improved plan. He asked permission to fabricate some rockets at the arsenal here, in order to show the character and value of the improvements. The permission was granted, and instructions were given to the commanding officer of the arsenal to afford him facilities for executing his work there. He made a few rockets which were found, on trial, to be good; but as the Hale's rockets which we had previously made, according to the instructions we had purchased from Mr. Hyde, had also proved good on first trial, but had been found to deteriorate and become unfit for service after being kept for some years, it was deemed necessary to subject those with the alleged improvements to the further test

of time, in order to ascertain if this serious defect in the originals had been overcome. An agreement was therefore made with Mr. Robert Hale to make some of his improved rockets at the arsenal here, the government furnishing the materials, and he receiving five dollars per day during the time he might be engaged in superintending their fabrication, and this agreement was carried into effect.

Mr. Hale was informed that these rockets would be distributed in different parts of the country, to be exposed to the vicissitudes of climate for twelve months, and that they would then be tried, when the Ordnance Department would consider their merits, and the compensation, if any, that might be due to him for the improvements, if there should be such. Some of the rockets were accordingly sent to Baton Rouge Arsenal; some to the ordnance depot in New Mexico, and the residue left at Washington Arsenal. After the lapse of time, exceeding the twelve months at first intended, these rockets were tried, and the results at Baton Rouge and Washington Arsenals were favorable, while those of the trial in New Mexico were unsatisfactory. The last Mr. Hale attributes to the want of a proper stand in firing the rockets, which may account for it in part, but not entirely; considering, however, all the different trials, as also the results of practical tests in foreign services so far as I have been able to learn them, I conclude that Mr. Robert Hale's rockets are superior to those of the former pattern, but I cannot see that his stand is necessary for firing them, or that it is so decided an improvement on the stand we had before as to render any payment for it advisable beyond the reimbursement of its cost to Mr. Hale.

I, therefore, respectfully recommend that a compensation of \$1,000 for the improvements in the rockets, and also the value of the rocket stand (to be ascertained and agreed upon by the commanding officer of the Washington Arsenal and Mr. Hale), be paid to him, on his giving in writing full and correct information requisite for the making of war rockets with the latest improvements—this information to be such as will enable us to make these rockets at our arsenals.

Mr. Hale's letter, with its inclosures, is returned herewith.

Respectfully, &c.,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JOHN B. FLOYD,
Secretary of War.

[Indorsement.]

Approved.

J. B. FLOYD,
Secretary of War.

FEBRUARY 24, 1858.

[Letters to W. D., vol. 12, p. 84.]

Indorsement on Cyrus Buckland's letter of 14th January, 1858, asking compensation for his improvements and inventions. (B. 53; 28.)

ORDNANCE OFFICE,
January 27, 1858.

Respectfully submitted to the Secretary of War. I have no hesitation in saying that I think Mr. Buckland entitled to compensation for his improvements and inventions in machinery for the manufacture of arms at the national armories, of which the government now has, and for some time past has had, the use and benefit. It would be difficult,

perhaps impossible, to estimate the amount of that benefit pecuniarily : and as Mr. Buckland has not taken out patents for any of them, but allowed their use by the government free of charge, I think that it will be but just to purchase his invention for breeching barrels, and to allow him for it and the use, past and future, of his other inventions, the sum of ten thousand dollars, to be charged to the appropriation for the manufacture of arms at the national armories. There are precedents for such allowances, in the case of Mr. J. B. Hyde, who was paid \$20,000 for the information how to make, and the right to make, war-rockets of a new invention, and in the case of Dr. Edward Maynard, who was paid \$75,000* for the right to apply his self-priming lock to and to use his primers with government small arms.

H. K. CRAIG,
Colonel of Ordnance.

[Indorsement.]

The recommendation of the Colonel of Ordnance for the purchase of C. Buckland's invention at \$10,000 is approved.

J. B. FLOYD,
Secretary of War.

MARCH, 18, 1858.

[50 A, 1858.]

ADJUTANT-GENERAL'S OFFICE,
Washington, February 23, 1858.

COLONEL: The letter of Lieutenant McAllister, Ordnance Department, forwarding a requisition for recruiting funds, and stating that they are required to pay for administering oaths of enlistment, and for premiums due under paragraph 1315 General Regulations, in the cases of men enlisted in the Ordnance Department, has been received.

In reply, I have the honor to inform you that the paragraph in question has long since been decided not to apply to ordnance men. The only expenditure allowed for them from the recruiting fund is for administering the oath of enlistment. This, as stated in the indorsement on Lieutenant McAllister's previous application for funds, dated January 25, 1858, the recruiting officer of the general service at Richmond will pay, on a voucher with proper certificate made by Lieutenant McAllister.

I am, colonel, very respectfully, your obedient servant,
S. COOPER,
Adjutant-General.

Col. H. K. CRAIG,
Ordnance Department, U. S. Army.

[Letters to W. D., vol. 12, p. 104.]

ORDNANCE OFFICE,
Washington, March 3, 1858.

SIR: The second edition of the Ordnance Manual, a work published by authority of the War Department, has become nearly exhausted, and another edition will soon be wanted. Before asking your authority to

* *Ante* p. 617.

publish a third edition of this most valuable military book, it is proposed to revise and amend many of the articles contained in it. Such revision and emendation are made necessary by the advance in science, the introduction of new weapons, implements, &c., and the changes of former models. To do this it is proposed to submit the various portions of work to different officers of the Ordnance Department, best suited by experience and taste, to revise, correct, and add what, in their opinion, will be advisable. In carrying out this plan occasion will be taken to refer to many scientific and practical men of the country for such aid as may be within their power to afford, which no doubt will be cheerfully extended. After all the suggestions are received and properly arranged, a board of officers will be assembled to examine the whole before publication.

To carry out this plan I propose to place the details of the work in charge of an experienced officer of the department as a compiler, and for this purpose have to request that Captain Kingsbury may be relieved from command of Charleston Arsenal and ordered to report for duty to the Colonel of Ordnance, under such special instructions as he may receive from the Ordnance Office.

Very respectfully, your obedient servant,

H. K. CRAIG,
Colonel of Ordnance.

Hon. J. B. FLOYD,
Secretary of War.

[521 W. D., 1858.]

ORDNANCE OFFICE,
Washington, March 22, 1858.

SIR: The inclosed letter from headquarters of the Department of Utah to Captain Reno, directing him to enlist ordnance men to serve with a battery of artillery, was received by me this morning, and the proposed measure is so entirely opposed to my views of the duties and rights of the ordnance and artillery, respectively, that I hasten to bring the matter to your notice, for the purpose of obtaining your intervention to prevent its consummation.

Captain Reno was ordered to join the army for Utah solely in the capacity of an ordnance officer. The proper efficient performance of his duties in that capacity is sufficient to occupy his time and engage his attention, as well as that of the detachment of enlisted ordnance armorers, artificers, &c., which was sent with him. It was not supposed that he would be diverted from these legitimate and proper duties, to be assigned to those which pertain properly and exclusively to the artillery. That was done, however, without the knowledge of the Ordnance Department, and contrary to its views and wishes; the reason therefor being, as I understand, the necessity of the case, in the absence of artillery officers and enlisted men to take charge of the battery. Every consideration of justice and propriety demands that all batteries of artillery, and more particularly those in active service in the field, should be manned and served by artillery troops, under the direction of officers of that arm; and the assignment of such duties to ordnance officers and soldiers, or to any other than the artillery, is wrong. It is also adverse to the interests of the public service, inasmuch as it tends to lessen the artillery "*esprit de corps*," and assigns very important military service to troops who cannot be supposed to take as much interest in it or to be

as efficient for its performance as those to whom it legitimately pertains. Besides these considerations, which are amply sufficient to condemn the measure, it must be mentioned that the enlistment of the number of ordnance men which is directed by the letter from the headquarters of the Department of Utah will cause the total enlisted ordnance force far to exceed what the department has the authority to enlist. The authorized number is now nearly full, and there is ample occupation for them all in their proper ordnance duties. I urgently recommend that the battery of artillery in Utah be turned over to artillery troops as soon as possible, and that the ordnance men who may have been enlisted to serve the battery be discharged, or at least as many of them as may not be necessary for the performance of ordnance duties pertaining to that army.

Very respectfully, your obedient servant,

H. K. CRAIG,

Colonel of Ordnance.

Hon. J. B. FLOYD,
Secretary of War.

[Inclosure.]

HEADQUARTERS DEPARTMENT OF UTAH,
Camp Scott, Utah T., January 16, 1858.

SIR: You are aware from conversations with the colonel commanding how anxious he is to have your battery in an effective condition for active service the ensuing spring. He now directs me to write you as follows:

Many enlisted men are now being discharged for expiration of service, who will not re-enlist in their own corps, but who may probably be secured as laborers in the Ordnance Department, with the view of manning and driving your battery, till such time as their services can be dispensed with. The few ordnance men with you are designed for other and important duties connected with the department, and their time cannot be taken for instruction in the battery. The company of infantry manning the battery is too small for its service, and will be much smaller; moreover, every foot soldier with the army of Utah will be needed in his legitimate sphere when the army resumes its march, while your teamster drivers will be employed elsewhere, in the places of others made vacant by discharge. Many of these discharged soldiers will be as effective cannoniers as can be procured, and the discharged dragoons will make good drivers; all supplying that confidence, which, in the event of an action, cannot be reposed in the hired men of the army.

From these exigencies and the diminished and rapidly diminishing number of enlisted men of the army, the colonel commanding is desirous of securing the services of these men to government in the only available branch in which they are likely to take service, and he therefore authorizes you to enlist for the battery as many men, not exceeding 116, as can be obtained, to be rated as laborers, and to be enlisted for 5 years, or till such time as their services can be dispensed with.

I am, sir, very respectfully, your obedient servant,

F. J. PORTER,

Assistant Adjutant-General.

Bvt. Capt. J. L. RENO,
Ordnance Department, Camp Scott, Utah, T.

[Letters to W. D., vol. 12, p. 119.]

ORDNANCE OFFICE,
Washington, April 6, 1858.

SIR: Numerous experiments, made recently by officers of this department, have shown conclusively that the gunpowder procured within a few years, although it had been submitted to the usual tests provided for in the Regulations, and answered all the requirements which science and experience had pointed out as proper for the occasion, is unsuitable

for the service of our very heavy guns. Owing to the rapid combustion of this kind of powder, so great a force is instantaneously developed that not only our heavy guns have been, in many instances, burst, but the hollow projectiles have been crushed in the bore of the guns, indicating a property in the powder not observable in the ordinary tests, resembling in its effects that from the action of gun-cotton. Gunpowder, particularly that which is intended to be used in heavy charges from guns, should be progressive, rather than instantaneous, in its combustion, to avoid too sudden violence to the metal of the gun and projectile; in other words, the combustion should continue until the projectile had reached the muzzle of the gun, nearly. The cannon powder now in store will answer for guns of small caliber, and the quantity is not in excess of the wants for that purpose; but it will be necessary to purchase, as soon as possible, a supply of cannon powder for our heavy seacoast guns, free from the evil qualities above pointed out. The accidents that have occurred have induced the officers of the department, not only to investigate and detect their cause, but also to devise tests of cannon powder, which, it is believed, will effectually prevent their recurrence. I have, therefore, respectfully, to submit an additional estimate of \$100,000, "for the purchase of gunpowder for the land service," and to recommend that the appropriation thereof be requested.

Very respectfully, your obedient servant,

H. K. CRAIG,
Colonel of Ordnance.

Hon. J. B. FLOYD,
Secretary of War.

[Letters to W. D., vol. 12, p. 128.]

ORDNANCE OFFICE,
Washington, April 23, 1858.

SIR: I have to acknowledge the reference to this office of a letter from the Senate Committee on Military Affairs and the Militia, inclosing resolutions of the legislature of the State of New York respecting the issue of arms to the militia, and according to your directions to report thereon.

I am not aware on what grounds the muskets which have been issued to the State of New York are reported of an unserviceable quality. No other than serviceable arms have ever, to my knowledge, been furnished to the States, under the law for arming the militia. Muskets altered to percussion, and not those of the most recent pattern, have been generally issued, for the following reason: until a comparatively recent date all the small arms procured for issue to the States under the law for arming the militia were obtained by purchase under contract from private armories. From the time the law went into effect until the year 1848, muskets were procured from the appropriation for arming the militia in this way, and in no other. The practice up to that time was to make, under the standing annual appropriation of \$200,000, contracts for small-arms for supplying the militia, running through a series of years. This practice was not entirely abandoned until after the Hon. Jefferson Davis came into the administration of the War Department, and when the contracts, which he found then running, had expired by completion; all or nearly all the appropriation was thus applied to procuring small-arms and their accouterments, such having been, when that system of contracts commenced, the only kind of arms and equipments which the requisitions for supplies for the States called for. Subsequently, but long before

this mode of applying the appropriation (always under the direction and with the sanction of the Executive) had ceased, requisitions for arms for the militia began to include other arms than the small-arms thus provided, such as cannon with their carriages, equipments, harness, &c. These, when called for, were supplied by authority of the Executive in liquidation of the State's quotas, or their equivalent in small-arms; and, having been provided from other appropriations than that for arming and equipping the militia, the muskets so provided, and in lieu of which they were issued, remained in the United States arsenals as the representative of the money so expended from those other appropriations, instead of the articles which had been actually procured thereby. In a series of years, and from an increasing demand by the States for cannon and other supplies than small-arms, which the general government did not decline to comply with so far as its arsenals contained the means of supplying them, the muskets which had been procured by purchase from the militia appropriation accumulated on our hands, and a considerable supply of those arms so obtained yet remains. The States having had the benefit, by their own special request, of supplies derived from other appropriations, it was considered but equitable that they should receive, so far as they required that kind of arm, the muskets obtained from the appropriation for arming the militia, and the 103d article of the Ordnance Regulations which was in force until superseded by par. 1266 of the Army Regulations of 1st January, 1857, under the section relating to issues to the States for arming and equipping the militia, accordingly prescribed: "The arms to be issued to the States for arming the militia are made at private armories, and such arms will be issued accordingly. In cases where no arms of this kind are on hand at the depot to which the order is addressed, others may be furnished. The arms and accouterments furnished must, in all cases, be of good quality and in order for service." When the percussion lock was adopted for the military service and the use of the flint lock was abandoned, a careful and critical inspection of all the flint-lock arms in possession of the United States was made, and all that were not of a date of manufacture and pattern prior to 1821, or unserviceable from damages of such an extent as not to be worth repairing, were retained for alteration to percussion. Most of them have been carefully and skillfully altered, and constitute a large portion of the small-arms in our arsenals. These altered arms are thought to be as useful and serviceable as the originally manufactured percussion arms; and the capability of the interchange of parts, which is the only material difference between the arms, is less important when they are to be used, as will most usually be the case with the militia, for exercise and drill, and at places where facilities for repairing and replacing their parts are readily accessible. Under the present laws and regulations the Secretary of War has authority to furnish the whole or any portion of the arms actually due to any State or Territory in any kind of arms and accouterments which have been regularly adopted for use by the United States troops; but no arms which have not been sufficiently tested and approved to warrant their adoption for the United States military service can be, nor ought they to be, issued to the militia; nor can any arms be supplied in advance of quotas due. I do not think that any farther legislation is necessary to enable the War Department to supply the militia with proper and serviceable arms and accouterments to the extent of the existing annual appropriation for that object. I think it would be expedient to increase the annual appropriation for arming the militia, provided that some effectual plan, by State legislation or otherwise, is first adopted, which

will secure the preservation, in good order, and a proper accountability for the arms and accouterments furnished to the militia. Such an increase will require legislation. The letter from the Committee on Military Affairs and the Militia, with its inclosure, is returned herewith.

Very respectfully, your obedient servant,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JOHN B. FLOYD,
Secretary of War.

[Letters to W. D., vol. 12, p. 153.]

ORDNANCE OFFICE,
Washington, June 5, 1858.

SIR: In answer to your letter of this date, I have the honor to state that I consider it advisable and proper to verify or refute, by a practical test, the propriety of the preference given by the board of officers at West Point, after preliminary trials, to Burnside's breech-loading arm over all the others presented to them for trial. I think the arm a good one for mounted troops, and I prefer Burnside's to any other metallic cartridge I have seen. I think it due to the merits which this arm has been pronounced to possess by the officers directed to examine, try, and compare all breech-loading arms, that the opportunity should be given of settling the question of its superiority or otherwise, as a military weapon, by actual use in the hands of troops, which is the only sure and reliable test. To do this, a sufficient number should be obtained to arm a portion of our mounted troops, say one thousand men.

The state of the existing appropriations will not admit of the purchase of these arms, and it will require a special appropriation of \$45,000, including the purchase of a proper supply of ammunition.

I respectfully transmit, herewith, the report of the board on breech-loading arms.

Respectfully, &c.,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JOHN B. FLOYD,
Secretary of War.

[Letters to W. D., vol. 12, p. 157.]

ORDNANCE OFFICE,
Washington, June 16, 1858.

SIR: I respectfully submit, herewith, a letter from the board of ordnance officers, appointed in conformity with the army appropriation act of 12th June, 1858, for the examination of different models of breech-loading carbines.

There seems to me that there are but two modes for the board to follow; first, to examine and try such breech-loading carbines only as were presented to the board at West Point, and to make a selection from them, with the aid of the facts found by that board, but irrespective of its opinions. This would be the easier and quicker mode of

reaching a result, but it would throw out of competition all carbines which were not presented for trial at West Point.

The second mode is to admit for competition all breech-loading carbines, whether heretofore offered for examination and trial or not, and to make the selection from the whole. This will require more time to reach a result, but it will give a wider field for selection, and will be less liable to future objections from inventors or patentees. If this mode be adopted I think it will be proper to give notice, as suggested by the board, of its appointment under the law and the purpose for which it was constituted, as also the time and place of its meeting, and to prescribe as a rule for all competitors for the best model that each shall notify the Colonel of Ordnance by letter of his intention to offer a breech-loading carbine, with a description of the same and of the kind of ammunition required for it. Every one so writing to this office will be directed to present his carbine to the board at the place and on the day when it may meet.

When the arms shall thus have been brought together, the board may proceed to give them such examination and trials as they may deem proper to enable them to make a selection, as required by law. I think there are more facilities for making these trials at West Point than elsewhere. If that place, or any other than Washington Arsenal, be designated, it will be proper to appoint another officer on the board than Major Ramsay, who is the only officer at that arsenal, and cannot be spared from service there. I suggest the name of Major A. Mordecai for the detail. It will also be necessary to allow time for giving notice of the trials, which will require the meeting of the board to be deferred to a future day, which I would suggest shall be the 12th July next.

Respectfully, &c.,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JOHN B. FLOYD,
Secretary of War.

[Letters to W. D., vol. 12, p. 160.]

ORDNANCE OFFICE,
Washington, June 23, 1858.

SIR: I have the honor to acknowledge the reference to this office of a letter from Mr. J. M. Reed, calling attention to his proposal for furnishing "iron gun-carriages," and, in obedience to your directions, have to report that the subject of the substitution of wrought-iron for timber in the construction of seacoast gun-carriages, of which you have been advised, has been receiving the attention of the officers of this department for a considerable length of time, and trials of a carriage of this material have been carried out at the Fort Monroe Arsenal, the results of which leave no room to question the great superiority of wrought-iron over any other material yet tried for the purpose. Although the first and only carriage yet made has, in a most extraordinary manner, been proved to be suitable for the service, it is deemed advisable, for the sake of economy, to modify the details of the workmanship without altering the general plan of the carriage, which has therefor been found to be good. The carriage made and tried is for a barbette battery. A plan for a casemate carriage of same material and on similar principles, as nearly as the nature of their services will permit, has been prepared, and Captain Dyer, of this

department, is now on a visit to the iron works at the North for the purpose of procuring suitable material for the construction of a trial casemate carriage. In the construction of these carriages for our fortifications, after the trial ones shall have been submitted and received your approval, it is intended to procure the iron, cut into shapes, direct from the manufacturers, and assemble them at our arsenals, where we have ample means. The employment of contractors to do such work would not only tend to increase the cost, but would greatly diminish the facilities for strict scrutiny, so necessary to secure faithful work.

The means supplied by Congress for these carriages is limited, and not more than can be advantageously expended at the arsenals. No causes other than the wants of the service should, I think, be allowed to interfere with the course I have here suggested as proper. If an urgency should hereafter arise, rendering a more speedy garnishing our forts requisite, and Congress should supply the means of doing so beyond the capacity of our arsenals to do the work, I would then admit the propriety of calling on contractors or middle men to aid in the work, even at some additional cost. Until then, I cannot advise the acceptance of the offer in Mr. Reed's letter, which is herewith returned.

Very respectfully, &c.,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JOHN B. FLOYD,
Secretary of War.

[Miscellaneous Letters, vol. 49, p. 284.]

ORDNANCE OFFICE,
Washington, July 19, 1858.

SIR: As requested by your letter of the 15th instant, I have the honor to submit the following statement showing the changes, with their dates, which have been made in the fire-arms furnished to the dragoons and cavalry of our service:

When the first regiment of dragoons was organized in 1833 they were supplied with fire arms as follows: One flint-lock pistol and one Hall's carbine per man. The first change was in April, 1849, when the percussion pistol and the musketoon—one of each per man—were supplied for the flint-pistol and the Hall's carbine. In November, 1849, the Colt's pistol was first supplied to the regular dragoons, and this arm has gradually superseded the percussion pistol. In February, 1853, Sharp's carbines were issued to the dragoons, as experimental arms, and subsequently these arms have been supplied to the second regiment of Dragoons, and sent forward for the first regiment: those for California shipped in January and February last. Recently, by direction of the Secretary of War, Colt's pistol-carbines (being the pistol with a stock to be attached or removed at pleasure) were issued for five companies of the second dragoons on requisition of Brevet Colonel May.

The cavalry are armed as follows: First regiment, eight companies with Sharp's carbines and two companies with Burnside's carbines; second regiment, eight companies with rifle carbines made at Springfield Armory, muzzle loading, and two companies with Sharp's carbines. The dragoons and cavalry are both armed with the Colt's pistol, being the only fire-arm (except the musketoon, no longer issued) *regularly adopted* for these troops in our service. While the musketoon (the other regularly

adopted fire-arm for dragoons) has gone almost entirely out of use from its short range and want of accuracy, and its manufacture has been discontinued, there has been no arm regularly adopted in its stead: but all those which have been supplied in place of it, viz, the Sharp's carbine, the cavalry-rifle carbine, the Burnside's carbine, and the Colt's pistol-carbine, are only experimental arms, and there is now no regularly prescribed fire-arms for the dragoons and cavalry but the revolver-pistol. I may add that there is no regularly prescribed pattern for cavalry or dragoon horse equipments, the various patterns in use, viz, Grimsley's, McClellan's, Jones' and Hopes', being all experimental.

It is very desirable that both the fire-arms and horse equipments for cavalry and dragoons should be regularly prescribed. And as the only conclusive test of excellence, for army purposes, of such arms and equipments, is the result of trial by troops in actual service, it seems proper that the patterns should be selected by a board composed of officers of rank and experience, representing each of the five mounted regiments, with an ordnance officer to give information in regard to the quality of material and style of workmanship.

Respectfully, &c.,

H. K. CRAIG,
Colonel of Ordnance.

Maj. IRVIN McDOWELL,
Headquarters of the Army, West Point, N. Y.

[Letters to W. D., vol. 12, p. 180.]

ORDNANCE OFFICE,
Washington August 26, 1858.

SIR: I have to acknowledge the reference to this office, for report, of the Hon. C. J. Faulkner's letter of the 20th instant, making certain inquiries relating to cannon and their manufacture by the government, and in answer thereto, taking the different questions in the order stated in the letter, to report:

1. The number of cannon at this time belonging to the United States in the land service is 4,222 iron cannon for seacoast, garrison, and siege batteries, of which 3,791 may be considered serviceable and reliable, and 351 brass cannon for field service and the armament of forts. The number of cannon for the naval service, now belonging to the United States, is not known to this office, but may be readily ascertained, it is supposed, by referring to the Ordnance Bureau of the Navy Department.

2. The present annual demand of the land service for heavy ordnance may be estimated at 500 pieces, of iron. Including issues to the States and Territories under the law of 1803 for arming and equipping the militia, the annual requirement of brass cannon is estimated at 100 pieces. With this annual supply for ten years the demand, thereafter, will only be to replace broken and worn-out cannon and to supply the States and Territories, and may be estimated at 250 iron and 45 brass cannon per annum.

3. There are required for the armament of forts on the frontiers of the United States, 6,111 iron cannon of all calibers, from 10-inch columbiads, 12-pounder siege and garrison—of which by far the largest proportion should be of the heavier calibers—and 345 brass cannon: there should

also be on hand 300 brass field pieces, and a siege train of not less than 100 pieces. This makes the—

Requirements	6,214 iron, 695 brass.
Supply	3,791 iron; 351 brass.
Deficiency	2,423 iron, 344 brass, or 2,767 pieces.

These will require also 276,700 shot and shells.

4. The private manufactories of cannon in the United States are—

For iron cannon: The South Boston foundry at Boston, Mass.; the West Point foundry, at West Point, N. Y.; the Fort Pitt foundry, at Pittsburgh, Pa.; the Tredegar foundry, at Richmond, Va.; the Bellona foundry, on James River, 12 miles above Richmond, Va.

For brass cannon: The South Boston foundry, Boston, Mass.; the Chicopee foundry, Chicopee, Mass.

5. All the government cannon are purchased from these foundries on orders given to the founders from time to time, as the appropriations for their purchase admit and the wants of the service require. The average amount of the orders annually given for iron cannon is about the same to each foundry making that kind of cannon; and the brass cannon, as required from time to time, are obtained in equal proportions from the two founders who are prepared to execute that kind of work. The supply is as abundant as the means usually appropriated for the purchase will procure. The quality is not as satisfactory as is desirable, nor, as it is believed, could be obtained by having a government foundry.

The prices paid for the finished cannon are: For 24-pounder flank howitzers, iron, 9 cents per pound; for all other chambered iron cannon, 6½ cents per pound; for all iron guns (unchambered), 6 cents per pound; for all pounder light mountain howitzers (brass), 75 cents per pound; for all other brass pieces, 46 cents per pound.

6. After a government foundry shall have been erected and put in operation, cannon and other castings can be manufactured there at as little cost as they are now made at the private foundries, which is less than we can purchase them for, the founders' profits being estimated at least 20 per cent.

7. The cannon cast at the private foundries, prior to 1842, were found to fail in service so frequently as to render it necessary to have a careful examination made of the metal of each piece cast before that date. This examination showed great differences in the character of the metal used at different foundries, and even at the same foundry at different times, inasmuch that a large proportion of the guns on hand had to be classified as of doubtful strength, and to be laid aside for use only in case of great emergency. It will be necessary eventually to condemn all these doubtful guns, and to replace them with other reliable pieces, which will cause a great pecuniary loss to the government. The powder proof to which these guns were subjected is not reliable, as many of them withstand this test and yet burst afterwards with smaller charges in service. The best and only safeguard is to use no metal but that of the very best quality. Since 1842, it has been the practice to send an officer to each of the foundries employed to cast cannon for the government, to examine the metal before casting and to supervise the operations during the manufacture. This has had a good effect on the quality of the cannon, but notwithstanding, the castings, especially the columbiads (guns for throwing heavy shell and shot), have not been of satisfactory quality.

8. The establishment of a government foundry is advisable as a measure of national policy, to establish a standard of excellence to which all work of the same kind at private foundries, when employed by the government, must be equal; to secure the use of none but the best quality

of gun-metal, by allowing no other quality and no admixture of different qualities to be cast into a gun; to secure confidence on the part of the soldiers in the strength of their guns, a doubt even of which will always produce a most disastrous moral effect, and may cause the loss of a battle or of a fort, worth more than a dozen foundries, and even of that which cannot be measured by value, of human life and of national honor.

At a national establishment the only object will be superiority of product, without the temptation of profit, which must influence more or less the operations at private establishments and may cause the use of the cheapest kinds of material and workmanship which will pass inspection. It is not intended to cast any imputation on the honor, honesty, or fidelity of the private founders, but they cannot regulate and control every detail of their works. They must have materials of different qualities for different kinds of work, as none of them are or can be devoted to government work exclusively, and it is but human nature to strive for the largest profits, and with that end in view even the most honest and conscientious may persuade themselves that material and workmanship, although not of the highest quality, are good enough. Besides, there must always be a feeling of sympathy for the founders on the part of the inspectors which will cause a reluctance to inflict pecuniary loss on an individual by the rejection of his work, which would be less likely to operate when the government officers and the government work only are concerned. Select the inspectors as you will, they cannot be above the standard of human frailty, and in so important an end as providing for the national defense and the preservation of national honor, no pains should be spared to attain as nearly as possible to perfect means. This is the only nation of equal greatness which is without the means at its exclusive control of fabricating its ordnance. All the important nations of Europe have their national foundries, and Great Britain, with her immense private manufacturing resources, has been compelled, after many years' dependence on private foundries, to resort to a government establishment for procuring cannon. The experience of her Crimean war induced it, and the results have since fully confirmed the wisdom of the measure. Our own experience, though on a small scale, furnishes important evidence on this question. The Navy Department has within a few years put up a small foundry at the navy-yard in this city for casting boat-guns and some of their shot and shells. The result has been the raising of the strength of their bronze-gun metal from thirty and forty-two thousand to over sixty thousand pounds per square inch; and this department has on more than one occasion, when shells of superior quality were wanted for special purposes, had to resort to that foundry to procure them, and always found them satisfactory. The letter of Mr. Faulkner is returned herewith.

Very respectfully, &c.,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JOHN B. FLOYD,
Secretary of War.

[Miscellaneous Letters, vol. 49, p. 442.]

ORDNANCE OFFICE.
Washington, October 6, 1858.

SIR: In answer to your question of 5th instant, I have to state that, as far as known to this office, the paymasters and military store-keepers at Harper's Ferry and Springfield Armories have always paid themselves from the appropriation "National Armories," and I under-

stand that the Paymaster-General has never included their pay in his estimates.

How far this course has been correct since the act of Congress of 23d August, 1842, the second section of which, in fixing their salaries, connects them with the paymasters and military storekeepers at the arsenals, I am not prepared to say.

I am, sir, &c.,

H. K. CRAIG,
Colonel of Ordnance.

T. J. D. FULLER, Esq.,
Second Auditor, Treasury Department.

[Ex. Docs. 2d session 35th Cong., vol. 2, part 3, p. 1304.]

ORDNANCE OFFICE,
Washington November 1, 1858.

SIR: The following report of the principal operations of the Ordnance Department during the past fiscal year is respectfully submitted:

The duties of this department are, as frequently stated in annual reports, to provide and furnish ordnance and ordnance stores of every description for the use of the regular troops, and for the permanent fortifications and other military posts of the United States; also the annual supplies for arming and equipping the whole body of the militia. They include the preparation of estimates for those objects, the direction, under the sanction of the War Department, and the supervision of all expenditures therefor, and of all operations at the government armories and arsenals, the care and preservation of all military supplies and other public property at those places; the inspection and proof of all cannon, small-arms, equipments, and ammunition purchased and fabricated for the government, the examination of all requisitions for arms or other ordnance stores for the regular troops and the militia; the ordering of proper quantities of them to the different points where wanted, with the transportation and delivery of those supplied to the States and Territories, and the enforcement of proper and regular accountability for all property of this description belonging to the United States. The annexed statement D shows that these duties require, for their prompt and efficient discharge, two additional field officers and eighteen lieutenants, and indicate the necessity of an increase of the Ordnance Corps to that extent.

As the operations of the past year in the discharge of these duties can be more readily referred to by placing them under their appropriate heads, they will be so arranged in this report.

FUNDS.

Amount, as per last year's report, undrawn from the Treasury July 1, 1857	\$493,868 57
In hands of disbursing officers, same date	62,434 78
Amount of appropriations for the fiscal year 1857-'58 including the appropriation for arming and equipping the militia	1,735,517 10
Received during the year for charges on account of damages to, and lost arms, and from other sources	42,847 75
	<hr/> 2,334,668 20
Expenditures during the year	\$1,893,112 11
Remaining in hands of disbursing officers June 30, 1858	56,029 97
Remaining in the Treasury undrawn, same date	385,535 12
	<hr/> 2,334,668 20

The separate expenditures from each appropriation will be stated under the respective heads as they occur hereafter in this report.

The accounts of the disbursing officers of this department have all been rendered.

The estimates for the next fiscal year have been carefully prepared and are restricted to the amount that may be judiciously and economically applied to the wants of the service.

ARMAMENT OF FORTIFICATIONS.

The expenditures from this appropriation for the fiscal year amount to \$181,888.13, and the principal articles procured by purchase and fabrication are as follows: 9 10 inch columbiads; 38 8-inch columbiads; 70 42-pounder guns; 51 24-pounder flank defense howitzers; 1 12-pounder gun; 20 42-pounder casemate carriages; 27 8 inch casemate carriages; 25 8 inch barbette carriages; 3 10 inch barbette carriages; 4 12-pounder carriages; 4 8-inch seige mortar beds; 1 stone mortar beds; 100 10-inch and 877 8-inch shot; 13,219 42-pounder shot; 400 10-inch and 2,520 8-inch shells.

Extensive repairs have also been made to the armaments of several of the forts. There has not been sufficient time yet since the authorization of experiments to test gun-metals for more than to make the preliminary preparations: the work is in hand and in a good state of progress. In my former reports I have referred to the difficulty of keeping wooden gun-carriages in a serviceable condition at ungarrisoned posts. Most of our permanent fortifications are usually without garrisons, and it is a question whether the maintenance of permanent garrisons at them, independently of other military advantages, may not be a measure of true economy by saving more in the preservation of the armament and other public property than would cover the cost of the maintenance of an adequate artillery force at each. The substitution of wrought iron for wood as a material for gun-carriages has been the subject of experiment. Two carriages of wrought iron for barbette and casemate batteries have been constructed and submitted to severe and extensive trials under the examination of a board of ordnance and artillery officers. The result of the trials enabled the board to report most favorably of the entire suitableness of wrought iron for carriages of position, and of its superiority over wood for such purposes, leaving nothing to be determined but a few details of construction before they are extensively made and introduced into our fortifications. The substitution of this more durable material than wood for gun-carriages will not, however, obviate the necessity of the presence of a garrison; for it is apparent that no structures, however faithfully made or of whatever material, can be left uncared for without suffering damage.

Every day's experience is more and more convincing of the necessity for a national manufactory of cannon and projectiles. The precautions which we are now compelled to adopt in order to insure as far as possible the use of none but safe and reliable material for the fabrication of iron cannon involve the same cost at each of the private foundries as would be required for a national armory of this kind. When multiplied by the number of private foundries where government cannon are made, and where the materials and manufacture have to be severally tested, the product shows a cost which forms of itself, exclusive of other manifest considerations, an ample argument in favor of the erection of a national foundry. This is a matter which has been fully investigated and frequently considered by Congress and I believe there has been little, if any, diversity of opinion in regard to its expediency.

ORDNANCE, ORDNANCE STORES, AND SUPPLIES.

There has been expended from this appropriation during the fiscal year the sum of \$392,335.35, and the principal articles procured by purchase and fabrication at the arsenals are as follows: 4 12-pounder bronze guns; 1 6-pounder bronze gun; 1 32-pounder bronze howitzer; 69 field carriages, caissons, and traveling forges; 8 12-pounder siege carriages; 16 24-pounder siege carriages; 8 18-pounder siege carriages; 12 10-inch siege mortar beds; 9 8-inch siege mortar beds; 1 42-pounder casemate carriage; 1,740 Sharps carbines; 2 Burnside carbines; 1 double gun, Richard's make; 826 Colt's pistols; 1,000 cavalry sabers; 53 12-pounder cannon balls; 105 8-inch mortar shells; 2,000 spherical case shot, different calibers; 3,721 infantry cartridge boxes; 600 infantry cartridge-box belts; 100 infantry waist belts; 1,308 infantry bayonet belts; 3,037 bayonet scabbards, with frogs; 200 cartridge boxes for Burnside carbines; 200 pistol-cartridge boxes; 561 waist belts for sword-bayonets; 1,501 sets of horse equipments; 170 Hope's saddles; 5,033 saddle blankets; 6,629 rounds fixed ammunition for field artillery; 3,016,200 cartridges for small-arms; 9,362,634 percussion caps for small-arms; 6,166,500 Maynard primers; 139,500 friction primers; 38,251 pounds laboratory paper.

The arms, equipments, ammunition, and other ordnance supplies which have been furnished for the regular service during the year are specified in statement C, hereto annexed. With a view to obtaining the best form of horse equipments for mounted troops four patterns of saddles are now in service, but the reports, as yet received, have not warranted the preference of either to the exclusion of the others.

ARMING AND EQUIPPING THE MILITIA.

The expenditures from this appropriation during the fiscal year have been \$257,594.44, and the principal articles procured by purchase and fabrication at the arsenals are as follows: 10 6-pounder bronze guns; 10 24-pounder bronze howitzers; 19 6-pounder gun carriages; 500 Sharps carbines; 7,250 Colt's pistols; 500 non-commissioned officers' swords; 10,000 infantry cartridge boxes; 8,500 cartridge-box belts; 6,300 bayonet scabbards, with frogs; 7,900 waist belts; 5,500 gun slings; 828 rifle-cartridge boxes; 500 rifle pouches; 1,750 rifle waist belts; 500 flask and pouch belts; 500 waist belts for rifle sword bayonets; 493 saber and artillery sword belts.

The apportionment of arms to the several States and Territories, according to law, and the supplies which have been furnished to the militia during the year on the requisitions of the governors of each, are set forth in the accompanying statements, marked A and B. By your authority the rifle muskets of the model of 1855 are issued to the States, some of the States having been so furnished. It is believed that this arrangement will have a beneficial effect, as the high finish and attractive appearance of the arm will not only encourage a military spirit in the militia, but will tend to counteract efforts that are being made to induce requisitions from State authorities for arms of private manufacture, that are more suitable for predatory warfare and personal rencontres than for the use of the militia of the country.

The building for an armory for the volunteers of the District of Columbia has been completed, and is used by them. An enlisted man of the Ordnance Department has the charge of it until some other arrangement can be made for its custody.

NATIONAL ARMORIES.

The expenditures at these armories during the fiscal year have been as follows:

	Harper's Ferry Armory.	Springfield Armory.	Total.
Manufacture of arms, appendages, tools, &c., and purchase of materials for the same	\$195, 277 72	\$189, 431 50	\$384, 709 22
For repairs, improvements, and new machinery, including buildings	25, 044 68	117, 096 41	142, 141 09
	220, 322 40	306, 527 91	526, 850 31

The reports of the superintendents, accompanying this, specify in detail the work that has been done at each of the armories during the year.

I stated in my report for the year ending June 30, 1857, that 2,015 of the new rifle muskets had been finished at Springfield. At that time none had yet been finished at Harper's Ferry. Since then, up to June 30, 1858, 19,785 rifle muskets and 1,719 rifles, both of the model of 1855, have been manufactured at these two armories; besides which a considerable number of arms of old patterns have been rifled and rendered suitable for long ranges. At Springfield a new dam, and a forging and machine shop have been nearly completed; operations of the armory being now carried on in the latter. The dam is entirely finished. The whole, in point of excellence and durability, will be unsurpassed.

ARSENALS.

There are in the United States twenty-three occupied arsenals, including the depots in Texas, New Mexico, and Washington Territory. In my last report I referred to the acquisition of a site for an arsenal in Texas, and of the representations which were afterwards made against the site so acquired. Since then the officer assigned to the construction of that arsenal has made a report in favor of a position in the city of San Antonio, and that report having the approval of this office awaits your sanction. No suitable site has yet been found for the depot in New Mexico; and the site selected for a depot at Fort Vancouver having been found to be interfered with by the possessory claims of British subjects, the project of building there has been abandoned for the present by your authority.

The erection of a small depot at Fort Leavenworth having been authorized by you, the work will be commenced as soon as an officer can be detailed to superintend it.

The amount expended for arsenals during the year was \$100,767.89, and this expenditure has been applied to the objects specially designated in the estimates on which the appropriation was based. They include repairs and preservation of the buildings, fences, wharves, &c.; the erection of new and additions to old buildings, and all improvements of a permanent character. The statements of operations at the principal arsenals hereto annexed are referred to for a more detailed account of the work done under this head. The estimate which I have made under this head is based on special estimates of the commanding officers, carefully examined in this office, and only the most important objects included.

In addition to the foregoing statements of expenditures, under the ordinary heads of appropriation, the following were made out of special appropriations, viz :

For testing gun-metal for heavy cannon :	
400 barrels of gunpowder	\$7,800 00
<hr/>	
For purchase of gunpowder for the Pacific coast :	
936 barrels of gunpowder	\$16,848 00
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For purchase of best breech-loading rifles :	
200 Colt's rifles	\$12,841 45
1,400 Sharps' carbines	42,350 00
10 carbines, Schroeder's patent	300 00
200 Burnside's carbines	6,000 00
<hr/>	
61,491 45	
<hr/>	
For the purchase of ground for the extension of Washington Arsenal :	
Payment to owners of the ground	\$75,209 77
For surveys, legal investigations of title, and recording of deeds, &c	2,647 82
<hr/>	
77,857 69	

In prosecuting experiments on the strength of gun-metal, and in proving cannon, evidences of a variation in the force and effect of gunpowder have been detected to an extent not before supposed to exist, attributable to causes not yet clearly ascertained, though no efforts have been spared to solve the mystery. The great desideratum is a powder that, whilst it imparts great ranges to projectiles, shall not by its too instantaneous combustion exert a force capable of destroying the gun before the projectile has acquired sufficient velocity to relieve the gun from the instant pressure of the inflamed powder, acting on the bore like fulminate or gun cotton. Further efforts will be made to arrive at the truth, before purchases of gunpowder are made, beyond our present wants.

Very respectfully,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JOHN B. FLOYD,
Secretary of War.

[Extract from Annual Report of the Secretary of War, 1858. Ex. Docs., second session Thirty-fifth Congress, vol. 2, part 2, p. 16.]

Staff.—I again call your special attention to the recommendations I submitted in my report last year upon the subject of the staff. Another year's experience has convinced me more than ever of the great benefits which would flow from the adoption of the suggestions and recommendations therein set forth.

[Letters to W. D., vol. 12, p. 249.]

ORDNANCE OFFICE,
Washington, February 22, 1859.

SIR: I have the honor to acknowledge the reference to this office of Mr. Yelland Foreman's letter of the 19th instant, making certain inquiries in relation to the Maynard primer, and in compliance with your directions have to report:

1st. *With regard to "the aggregate amount which has been paid for the right to use by the government Maynard's tape primer."* In reply to this question I have to state that the government has paid to Mr. Maynard the sum of \$76,000 for his invention, viz:

Contract of 20th March, 1845, for the right to apply his improvement to 5,000 arms.....	\$5,000
of which sum \$1,000 was paid by Navy Department.....	
Purchase of 12th July, 1853, for right to apply the same to 96,000 arms	21,000
And by contract of 3d February, 1854.....	50,000
	76,000

This last contract was for the whole use of the invention so far as government arms are concerned; embraced all future renewals or extensions; and the consideration money was paid in three installments—the first on the date of the contract, the second on the 14th October, 1854, and the last on the 3d of January, 1855.

2d. *With regard to "the opinion entertained of its efficiency as gathered from my recent official reports of that subject."* I have to say that at the time of the second, and of the last purchase, my own opinion, as well as that of the older officers of ordnance, generally was adverse to the universal introduction of this system of priming in government arms, principally on the ground that it had not been sufficiently tested in actual service; but having been overruled in the matter by your predecessor, who directed that it be adopted to all new-pattern arms, it became my duty to adopt all possible measures to improve the primer and the means for using it, so as to come as near perfection as possible. This result, it is believed, has been accomplished; still the reports which have been received from many officers to whom the new-model arms have been issued for service, though some of them are favorable, yet taken as a whole, are, from various causes, decidedly adverse to the use of this system of priming.

Mr. Foreman's letter is herewith returned.

Very respectfully, &c.,

H. K. CRAIG,
Colonel of Ordnance.

Hon. J. B. FLOYD,
Secretary of War.

Copy of the decision of the Secretary of War on letter of military storekeeper Baldwin, of January 13, 1859, asking "for information in regard to officers of his grade when in charge of posts," respectfully furnished for the information of the Colonel of Ordnance.

S. COOPER,
Adjutant-General.

ADJUTANT-GENERAL'S OFFICE, March 26, 1859.

[63 A., 1859.]

Military storekeepers are, what the term expresses, persons appointed for the keeping of military stores or property. They have no military rank, and cannot, properly, be classed as "commanding officers." It is not considered material that they should be reported on the register as being in charge of property or places.

J. B. FLOYD,
Secretary of War.

WAR DEPARTMENT, *March 23, 1859.*

[192 W. D., 1859.]

ORDNANCE OFFICE,
Washington, May 4, 1859.

SIR: I have to acknowledge the reference to this office, for report, of Mr. W. W. Hubbell's letter of the 28th ultimo, asking for orders to have certain fuses and shells made, at the government expense, for the purpose of continuing experiments on his patented inventions.

This is one of a class of cases which are becoming more and more numerous since the relaxation, in some instances, of a strict observance of the regulations, established in 1852, in regard to experiments on new inventions, a copy of which is inclosed. It has gotten to be so frequent an occurrence for inventors to ask for assistance, in the form of expenditures of public money, in putting their ideas into a proper shape for practical trial, as to have already become a serious tax on the means of the War Department, tending to swell the amount of military expenditures without any proportionate return, and in almost all cases without any return at all. So far as the professional knowledge and personal services of the officers and enlisted men of the Ordnance Department may be useful to aid inventors, I am perfectly willing to contribute them; but it is manifestly but fair to require that the inventors, who are to reap the pecuniary benefits of successful results, should bear the expenses, *in money*, of the trials. The following extract from a report, by Lieutenant Colonel Ripley, of his inspection of Springfield Armory, is pertinent to the subject: "Since the early part of 1854, upwards of \$2,300 has been spent, at this armory on work for private individuals, who have been permitted either to construct or perfect their arms in the government shops. But a small portion of this sum has ever been refunded, and it is a little remarkable that in both instances where it has been done, the persons so refunding were officers of the army. It may be seriously questioned whether this practice is not a violation of the regulation concerning private work in the public workshops; but however that may be, the practice entails considerable expense on the government, for which it cannot be pecuniarily remunerated, interferes quite materially with the legitimate business of the armories, and should be discouraged in every way by the department. The practice is very unjust and unequal in its operation. While one individual presents his arm for examination, either complete or nearly so, another comes with a crude and ill-digested idea, which he expects the mechanics at the armories to fully understand, or at least to assist him in perfecting, and in a number of cases the indifferent and rough models which have been presented owe many of their modifications and much of their successful working to the ingenuity and skill of the mechanics in government employ, for which the inventor obtains all the compensa-

tion and lays claim to all the credit." Although Colonel Ripley's report refers to the armories only, his remarks are applicable much more extensively, and the practice, so justly condemned, has reached a point to render it my duty to notice it, and to recommend the adoption of measures for its arrest and discontinuance. I therefore suggest and urge the strict enforcement, in all future applications, of the regulation of 1852 for the government of the Ordnance Department in regard to experiments on new inventions. This I consider necessary for the just and proper protection of the public interests, without being opposed, in any proper sense, to the spirit of invention and improvement; for, there will seldom or never be a case of real merit in this respect, for which government aid may not be obtained by special appropriation.

Entertaining the foregoing views, I of course report adversely to the granting of Mr. Hubbell's request, and return his letter herewith.

I have the honor to be, very respectfully, your obedient servant,
 H. K. CRAIG,
Colonel of Ordnance.

Hon. JOHN B. FLOYD,
Secretary of War.

[Indorsement.]

The recommendation of the Chief of Ordnance for a strict enforcement of the regulation of 1852, is approved.

J. B. FLOYD,
Secretary of War.

WAR DEPARTMENT, May 11, 1859.

[225 W. D., 1859.]

ORDNANCE OFFICE,
 Washington, D. C., May 24, 1859.

SIR: I have to acknowledge the reference to this office, for report, of the letter of the Hon. J. D. Westcott of the 19th instant, and to state that this office has no information with regard to the competition which Mr. Law has had to contend with in the sale of the muskets he purchased from the government a few years since.

It is, however, well understood that some of the arms issued to the States under the law of 1808 for arming the militia have been sold or otherwise improperly, as it is thought, disposed of. How far such sales are calculated to interfere with those of Mr. Law, I will not undertake to say. I know of no way of preventing the sale of arms issued to the States except by legislation in Congress. The 50,000 muskets of old model, which under your authority of 22d March have been offered for sale, have been advertised for that purpose in all the journals indicated in the directions from your office.

A slip from one of these journals containing the advertisement will be sent to Mr. Westcott.

His letter is herewith returned.

With much respect,

H. K. CRAIG,
Colonel of Ordnance.

The Hon. J. B. FLOYD, *Secretary of War.*

[Inclosure.]

BREVOORT HOUSE,
New York, May 19, 1859.

MY DEAR SIR: My friend, George Law, wishes me to write to you upon a matter in which his interests are involved.

Some years ago he purchased a large number of United States muskets from the War Department, of which he has some yet on hand. Several thousand of the best of these muskets he has had rifled at a considerable expense, and in a mode that render them superior to the Minié rifle; and those he has disposed of readily in Europe, South America, and Mexico, &c. The others are chiefly bought of him to dispose of in the African market, being the cullings and mostly flint and steel locks.

His chief competitors in the sale of his arms have been persons who have bought the arms distributed by the United States to the different States. Thousands of these arms have been pilfered from the State arsenals, and some have been sold under authority of the States, and others sold by State officers illegally. Most of such cases have occurred in the Eastern States. A recent case occurred in Michigan. It seems to me that there ought to be some law corrective of these proceedings. Certainly the object of the distribution, *i. e.* to arm the militia, is frustrated by the disposition of them for sale in *foreign* markets.

Would it not be well for you to issue a circular to the governors of the different States, adjutants-general, &c., to inquire as to the condition of the arms distributed, how many on hand, kind, &c., how disposed of, &c., ready for a call for information which will be made on you so soon as Congress meets. Think of it. Again, Mr. Law is informed that the War Department has advertised a large number of old muskets for sale, or asked for bids. He has not seen any such advertisement, nor have I. Will you send him an advertisement, and direct the Ordnance Office to send him full information as to the arms, quality, kind, &c., and if ever used?

Yours truly,

JAMES D. WESTCOTT.

Hon. J. B. FLOYD, *Secretary of War.*

[Miscellaneous Letters, vol. 50., p. 428.]

[Circular.]

ORDNANCE OFFICE,
Washington, July 22, 1859.

SIR: The duty of purchasing horses for the light artillery companies having been assigned to this department, you will please make a requisition on this office whenever any horses are wanted for your battery. It is deemed the best mode to have the horses wanted for each battery, purchased by its commander, or some officer of the battery designated by him. If that be impossible, it should be so stated when the requisition is forwarded, in order that some other arrangement for the purchase may be made. The estimate and the appropriation for the present fiscal year, as I am officially informed by the Quartermaster-General, amount in the total for all the light artillery companies to \$15,300, being for 102 horses at \$150 each, of which the portion assigned to your company is \$630. Purchases for your company must therefore be limited during the present fiscal year, both as to the number and prices of horses, to the available means applicable thereto, as just stated.

I have to request that you will furnish to this office, in time to be received here during the month of August next, an estimate of the number of horses that will be required to be purchased during the next fiscal year (from the 1st July, 1860, to 30th June, 1861), and of the cost of the same; also, an estimate of the horse-medicines which will be necessary during the same period.

Respectfully, &c.,

WM. MAYNADIER,
Captain of Ordnance, in charge of Ordnance Bureau.

Lieut. Col. J. B. MAGRUDER, *Fort Adams, Rhode Island.*

[332 W. D., 1859.]

WASHINGTON, *August 11, 1859.*

SIR: Your favor, inclosing report of Captain Maynadier upon an assignment by Jno. R. Anderson and others to L. W. Sifford, of an interest in a certain contract for the manufacture of shot, was received and transmitted to Mr. Sifford. I do not concur in opinion, however, with Captain Maynadier that the 1st and 7th sections of the act of February 26, 1853, "to prevent frauds upon the Treasury of the United States," applies to the contract in question, which, when the work is executed and approved, constitutes what is called a *debt* rather than a *claim* against the United States. The inclosed circular contains the views of this office, which have recently been acquiesced in by the Post-Office Department, in relation to the assignment of certificates of indebtedness and without which it would be difficult, if not impossible, for that department to carry on its operations at this time.

I am, sir, very respectfully, your obedient servant,

WM. MEDILL.

Hon. WM. R. DRINKARD,
Acting Secretary of War.

[Reprinted.]

Circular as to powers of attorney, transfers, and assignments of claims.

TREASURY DEPARTMENT,
First Comptroller's Office, ———, 185—.

The attention of all persons interested is invited to the following acts of Congress:

By the act of Congress, *approved July 29th, 1846*, entitled "An act in relation to the payment of claims," it is provided, "that whenever a claim on the United States aforesaid shall hereafter have been allowed by a resolution or act of Congress, and thereby directed to be paid, the money shall not, nor shall any part thereof, be paid to any person or persons other than the claimant or claimants, his or their executor or executors, administrator or administrators, unless such person or persons shall produce to the proper disbursing officer a warrant of attorney executed by such claimant or claimants, executor or executors, administrator or administrators, *after the enactment of the resolution or act allowing the claim; and every such warrant of attorney shall refer to such resolution or act, and expressly recite the amount allowed thereby*, and shall be attested by two competent witnesses, and be acknowledged by the person or persons executing it before an officer having authority to take the acknowledgment of deeds, who shall certify such acknowledgment; and it shall appear by such certificate that such officer, at the time of the making of such acknowledgment, read and fully explained such warrant of attorney to the person or persons acknowledging the same.

And by the act approved February 26th, 1853, entitled "An act to prevent frauds upon the Treasury of the United States," it is further provided:

SEC. 1. That *all transfers and assignments hereafter made of any claim upon the United States, or any part or share thereof, or interest therein, whether absolute or conditional, and whatever may be the consideration*

therefor; and all powers of attorney, orders, or other authorities for receiving payment of any such claim, or any part or share thereof, shall be absolutely null and void, unless the same shall be freely made and executed in the presence of at least two attesting witnesses, *after the allowance of such claim, the ascertainment of the amount due, and the issuing of a warrant for the payment thereof.*"

SEC. 7. "That the provisions of this act, and of the act of July twenty-ninth, eighteen hundred and forty-six, entitled 'An act in relation to the payment of claims,' shall apply and extend to all claims against the United States, whether allowed by special acts of Congress, or arising under general laws or treaties, or in any other manner whatever."

The provisions of the above recited acts must be strictly observed in every particular, in all cases arising under them.

1. The following forms may be observed:

Whereas by virtue of an act of Congress [or of a resolution of Congress, as the case may be], approved on the _____ day of _____, in the year _____, entitled (here give the title of the act or resolution), there has been allowed to me, A. B., the sum of _____ dollars and _____ cents, for the payment of which a warrant has been issued by the Secretary of the Treasury. Now know all men by these presents that I, A. B., of _____, in the State of _____, the claimant above referred to, do hereby make, constitute, and appoint _____, of _____, in the _____ of _____, my true and lawful attorney, for me, and in my name, to collect and receive the aforesaid claim from the proper officer or officers of the Treasury of the United States, and to give proper receipts and acquittances for the same, with power to the said attorney to substitute an attorney or attorneys under him for all or any of the purposes aforesaid.

In witness of which, I have hereunto set my hand and seal this _____ day of _____, in the year _____.

Signed, sealed, and delivered in the presence of _____.

2. STATE OF _____, County of _____, ss:

Be it remembered that on the _____ day of _____, in the year _____, A. B., the person described in the foregoing instrument or power of attorney, personally came before me, the undersigned, and on said instrument being read over to him and fully explained by me, he acknowledged that he executed the same for the purpose therein stated. And I further certify that I am an officer having authority to take the acknowledgment of deeds within said county.

3. If the acknowledgment is taken before a State or county officer not having an official seal, his official character and signature should be attested by the certificate of a clerk of a court of record of the proper county, under his seal of office.

4. In case of an assignment of a claim, or of a part thereof, the same form of recital of the facts, and reference to the act or resolution of Congress, and the same form of attesting the assignment, may be adopted.

APPLICATION OF THE STATUTES.

5. The question arises, to what classes of cases and demands do the statutes apply?

6. The act of July 29th, 1846, applies only to claims allowed by special acts or resolutions of Congress specifying the claim and the claimant, and directing the amount to be paid. The act of February 26th, 1853,

applies to all claims against the United States, whether allowed by special acts of Congress, or arising under general laws or treaties, or in any other manner.

7. The last statute is highly penal in many of its provisions, and therefore should be construed strictly, and the word claim must be held to have the same meaning in the first section, where it relates to transfers, assignments, powers of attorney, and orders, as in the sections which are penal. The words of the act expressly exclude it from operating upon or affecting any transfer or assignment of a claim, or of any portion thereof, prior to the approval of the act. Every draft or order, directing the payment of money to the payee, or his order, if it does not state that it is to be received in trust for the drawer, is in law a transfer of the amount therein specified to the payee. Such orders and drafts drawn before the approval of said act cannot be affected by it, though they may be affected by the act of July, 1846, if they were allowed by special act or resolution. Assignments of interest in a claim contained in powers of attorney to receive the whole claim, executed before the 26th of February, 1853, will be good, if the claim do not come within the terms of the act of July 29th, 1846; but no more than the amount assigned can be received under the power, if it be not executed in conformity with the requirements of those acts.

8. Powers of attorney, not containing an assignment, confer on the attorney no vested right to the fund, or any portion of it; and hence such powers executed before the approval of either of those statutes will be affected by it, if the claims to which they relate are of the character included in such statute.

9. A claim is defined in Jacob's Law Dictionary, title Claim, as follows: "Claim, a challenge of interest in any thing that is in the possession of another, or at least out of a man's own possession—as claim by charter, by descent, &c. In Plowden's Com., 359, Dyer, C. J., is said to have defined claim to be a challenge of the ownership of property that one hath not in possession, but which is detained from him by wrong."

10. The same definition substantially is given in Tomlin's Law Dictionary, and in Bouvier's Law Dictionary, title Claim.

11. The word claim has been sometimes used in a vague manner, as including all personal demands; but the most general sense in which it is used, and the one that is most accurate, limits it to demands that are disputed or uncertain in their nature. A debt admitted to be due, or evidenced by a judgment, bond, promissory note, bill of exchange, or other instrument in writing, the execution and validity of which is not disputed, is of a higher nature than a mere claim. Uncertain damages arising from a tort, or from the violation of a contract, constitute a claim, not a debt. The rights of American citizens to compensation for injuries received from the French Government prior to the treaty for the purchase of Louisiana, are usually spoken of as French claims. So also the claims of American citizens for injuries received from the Government of Mexico prior to the late war, which were adjudicated by commissioners, were properly called claims, and had not the certainty and essential character of debts. The claims of citizens to be indemnified for depredations committed upon them by Indians are properly called claims, and could not with propriety be called debts. So pensions and bounties subsequently granted to persons who have served in war, though founded on equitable considerations, yet they did not constitute legal debts, and the right to the pension or bounty granted is but a claim, and not a debt.

12. A salary account is not strictly and correctly speaking a claim:

it is a demand of a higher nature, and of a more definite and certain character than a mere claim; it constitutes a debt. So also an account for any other services rendered in pursuance of law, or rendered under a contract made in pursuance of law, constitutes a debt, and not a mere claim. So also an account for materials, provisions, and supplies of any kind, furnished for any of the departments of the government in pursuance of a contract legally made, constitutes a debt of a higher nature than a mere claim. But if the party claims an extra allowance beyond what the law or the terms of the contract give him, founded on equitable considerations, such as the difficulty of the service, the alleged hardness of the contract, and the insufficiency of the compensation, the amount claimed as an extra allowance is properly a claim, and not a debt. If a dispute arises in relation to the commencement or termination of a salary, the annual amount of which is fixed by law, and the accounting officers disallow a portion of the demand, the amount so disallowed becomes a mere claim. So in relation to other accounts; when the accounting officers act upon an account, disallow some of the items as illegal or overcharged, and allow the remainder, the items so disallowed lose the character of a debt, and become a mere claim.

13. The dividing line between debts and mere claims is observed with tolerable accuracy in prescribing the duties of committees in Congress. It is the business of the Committee of Ways and Means to bring in bills to provide for the payment of all debts due from the United States, as well as for the ordinary current expenses of the government, and to pay all such claims as have been recognized by law; that committee has nothing to do with claims which the laws do not recognize as legal and existing. On the contrary, claims for uncertain damages, for extra compensations, for pensions, and for depredations, trespasses, and injuries, are usually referred to the Committee on Claims, and other committees designated by the rules, to examine, report upon, and bring in bills for the payment of such sums as the appropriate committee may deem just.

14. It has been customary for salary officers, contractors, and other creditors of the United States, to draw orders or drafts on the government, which they negotiate, and thus realize the amount due them before the accounts are passed. This is often a great convenience to persons living at a distance, on the Pacific coast, or anywhere west of the Mississippi. Salaries are paid quarterly, but the account for a quarter cannot be passed until after the end of the quarter. Heretofore, drafts have been frequently drawn for a quarter's salary, or for a portion of it, and sent here before the end of the quarter; and, when so received, the account has been passed, and the warrant issued to the owner of the draft as the assignee of the salary. If the statute of February last should be applied to salary accounts, no such drafts could be drawn until after the end of the quarter, after the account was passed, and a warrant on the Treasurer issued for the payment thereof. The result would be, that many officers would be compelled to wait from 30 to 60 days after the end of each quarter in order to receive warrants on the Treasurer, or the Treasurer's drafts, before they could realize any portion of their salary; and the delay and inconvenience to many contractors, creditors, and employes of the government would be still greater. I do not believe that Congress intended that the statute should be applied to any such cases.

15. What was the evil for which the remedy was designed? A reference to the terms of those statutes, and the practice of agents in prosecuting claims before Congress, indicate the evil, and the object of the

remedy. Agents were in the habit of getting general powers of attorney to prosecute before Congress or the departments uncertain and doubtful claims, and to obtain and receive the amount which might be allowed upon them; and in many instances assignments were obtained of large claims for very small sums from persons not knowing their rights. In such cases, unsuspecting persons were put into the hands and power of sharp and cunning agents, and shrewd, unscrupulous speculators; the claimant often had no means of protecting himself against the false representations and deceptions of agents and purchasers, and the agent might misrepresent the amount collected. Hence the requirement that the power of attorney, draft, assignment, or transfer, should refer to the statute under which the claim is allowed, and that the amount due should be ascertained, and a warrant issued for the same, before any such power of attorney, draft, transfer, or assignment, can be legally made. It is obvious that this is required by the statute in order that the claimant may fully understand the extent of his rights, and the amount allowed to him, before he can legally assign or transfer the same, or authorize any other person to receive the amount. But no such precaution is necessary in relation to salary accounts, accounts for services rendered or supplies furnished, or for any other form of debt, about the amount of which there has never been any dispute. The officer or creditor in all such cases knows the precise amount, or very nearly the amount, due him; and no good can arise, but often very great inconvenience and evil, from imposing on him restrictions in relation to the time and mode of transferring and assigning the same, or of making powers of attorney for the receipt thereof.

SOLDIERS.

16. From various causes soldiers may not have been paid all that was due them. When the rolls are examined by the Second Auditor, the amount found due is reported to the Second Comptroller, and, if he admits it, he signs the report; and any paymaster of the army of the United States is authorized to pay the amount so found and certified. Certificates of this character are frequently assigned by the soldiers to avoid the loss of time and expense incident to traveling a distance to present them personally. The paymasters pay them, and include them in their accounts.

SAILORS.

17. Similar balances are found due to sailors by the Fourth Auditor, and reported to the Second Comptroller, and if he concurs, he signs the report, which authorizes a navy agent to make payment to the sailors or to their assignees. It is not known that any imposition, fraud, or extortion has been practiced in any of these cases.

18. Warrants are not issued to pay these and similar balances; advances are made to the paymasters, and navy agents generally, without specifying who are to be paid.

POST-OFFICE DEPARTMENT.

19. In making payment to a contractor for transporting the mail, no warrant is issued in his name. The contractors collect of the postmasters, or they draw orders on the department, or the department sends them drafts according to the circumstances of the case. Collections from postmasters are generally by the carriers, on authority given by the contractors—the department having designated the offices from which collections are to be made.

20. Orders are drawn by mail contractors to pay for expenses necessarily to be incurred in transporting the mail, and generally to obtain a credit in advance. They are lodged by the drawee or assignee with the Auditor to be paid when due, if the department shall then be indebted to the contractor.

UNITED STATES STOCKS.

21. The stocks of the United States are owned and held throughout the civilized and commercial parts of the world. Interest is to be paid thereon by agreement, semi-annually. In almost every instance it is paid on powers of attorney. A warrant is not drawn to pay any particular person, but seasonable advances are made to the assistant treasurers, or other persons designated to pay the interest, in different sections of the United States. Frequently powers of attorney are executed for collecting interest without any limitation as to time.

AMERICAN CONSULS.

22. American consuls are required by law, and by the directions of the Secretary of the State, to relieve indigent and distressed American seamen in foreign countries. Having incurred expenses for their relief, they are instructed to draw on the Secretary of the State, and to accompany the drafts by accounts and vouchers. The drafts are generally in favor of the business correspondents of the consuls in the principal cities, and may have been indorsed before they reach the State Department. If sustained by the accounts and vouchers they are paid to the holder, on the requisitions of the Secretary of the State, directed to the Secretary of the Treasury; and the accounts of the consuls are there-after settled in the due course of business by the accounting officers.

23. Consuls are authorized and required by law to send destitute seamen to the United States, and they are empowered to contract with masters of American vessels to transport such seamen, at a price to be agreed upon, not to exceed ten dollars for each one. To enable the master of the vessel to obtain the payment specified, the consul gives him a certificate stating the names of the seamen placed on board, and the amount to be paid for their passage. On the arrival of the vessel in a port of the United States, the collector of the customs indorses on the certificate that such seamen have arrived. The master of the vessel, if not the owner of it, assigns the certificate to the person or persons entitled to the pay, and an account is reported by the Fifth Auditor in favor of the assignees.

24. If those statutes should be applied to the cases mentioned, and to those of like character, the business of the government would be arrested to a great extent, to the injury of individuals, in violation of contracts, and of the public faith.

25. My conclusion is, that ordinary debts and accounts against the government, which have been legally contracted and never disputed, are not claims within the meaning of those statutes, and that the statutes do not apply to them, but apply to uncertain damages and losses, extra allowances, pensions, equitable demands, claims for the correction of alleged errors, claims for a return or repayment of duties, items of account which have been rejected, or are disputed, and such classes of cases as are usually referred to the Committee on Claims, and to committees other than the Committee of Ways and Means.

Comptroller.

[Miscellaneous Letters, vol. 50, p. 472.]

ORDNANCE OFFICE,
Washington, August 12, 1859.

SIR: Your letter of the 11th instant, to the Secretary of War, has been referred to this office.

The construction which you give to the 1st and 7th sections of the act of February 26, 1853, is precisely that which I have always argued and believed to be the correct one, and which I should be pleased to see concurred in at all the accounting offices of the Treasury Department. I had occasion, recently, in the case of a contractor for cannon, Mr. R. P. Parrott, of the West Point Foundry, to assume the same distinction between a *claim* and a *debt*. In that I was overruled by the Second Auditor, and yielding to what I regarded as the Treasury construction of the act of 26th February, 1853, I gave up my own views to what I regarded as an authoritative exposition of the law. Hence the opinion expressed in my letter to the Secretary of War; in your non-concurrence with which my own opinion of the true intent and meaning of the law is revived and confirmed. I am not at liberty, however, to act upon it so long as a contrary construction is given by that branch of the Treasury Department which controls the accounts from this bureau. A uniform construction seems to me to be very desirable.

Respectfully, &c.,

WM. MAYNADIER,
Captain of Ordnance, in charge of Ordnance Bureau.

Hon. WM. MEDILL, *Treasury Department.*

[347 W. D., 1859.]

WAR DEPARTMENT,
August 22, 1859.

The chiefs of staff departments and staff corps will submit programmes for a change of station of their officers who, on the last of the present month, will have been four years at their present stations. They will include those officers in the remote departments who have been there for a long period, though not at their present stations, and whose transfer to other departments may be deemed expedient, and any other changes that, for special reasons, they may think advisable.

W. R. DRINKARD,
Acting Secretary of War.

[Letters to W. D., vol. 12, p. 304.]

ORDNANCE OFFICE,
Washington, September 9, 1859.

SIR: I have to acknowledge the reference to this office, for report, of the muster roll of Private A. G. Smith, of light company A, second artillery, for extra pay for shoeing the horses belonging to the battery of that company; and have to remark that this is the first case of the kind that has, to my knowledge, been made as a charge against this department, and that I know of no law or regulation to support it.

With regard to the remarks of the Quartermaster-General, in reference to the requirements of the 4th section of the act, approved 8th February, 1815, it may be said that soon after the enactment, the plan is believed to have been, in some few instances, carried into effect, and proving to be a failure, was abandoned in practice; and by subsequent legislation the section referred to has been rendered inoperative. At all events, for

more than a quarter of a century the execution of that section has not been considered necessary for the public interest, and has not been required. This department furnishes, with each battery of light artillery, a forge and complete set of farrier's tools, and is always prepared to furnish shoes and nails on requisitions made in conformity with Army Regulations; and by the act approved June 17, 1850, two artificers are attached to each company of light artillery, who, it is supposed, might be employed as *horse-shoers*. That duty is so important, and in fact so essential to the efficiency of light artillery, that persons capable of performing it are absolutely requisite in its organization. If that duty is not expected to be performed by the two artificers, farriers ought to be provided for by law, with pay, &c., sufficient to induce the enlistment of competent smiths.

No provision has been made in the estimates of the Ordnance Department for such expenditures as that embraced in the account for extra pay. By the 960th paragraph of Army Regulations, it is made the duty of the Quartermaster's Department to pay the per diem allowance of extra-duty men of the army, and funds for the purpose are included in the estimates of that department for the current fiscal year and in the appropriations by Congress. If the duty of paying this extra allowance to the men of the light artillery be transferred to the Ordnance Department, by paragraph IV, of General Orders No. 11 (which is understood as referring exclusively to *materials*), a fair proportion of that fund, estimated and appropriated for the current fiscal year, should be transferred with it.

The muster roll referred to this office is herewith returned.

Respectfully, &c.,

H. K. CRAIG,
Colonel of Ordnance.

W. R. DRINKARD Esq., *Acting Secretary of War.*

[Letters to W. D., vol. 12, p. 312.]

Indorsement on letter from Lieutenant Stuart proposing to sell his patent saber attachment for \$5,000.

ORDNANCE OFFICE,
October 14, 1859.

In transmitting this letter to the honorable Secretary of War, I deem it proper to express an opinion adverse to the practice of officers of the army taking out patents for improvements in equipments peculiar to their profession.

H. K. CRAIG,
Colonel of Ordnance.

[Miscellaneous Letters, vol. 51, p. 93.]

ORDNANCE OFFICE,
Washington, October 24, 1859.

SIR: I have to acknowledge your reference of Bvt. Major H. J. Hunt's letter to you of 18th instant, in reference to General Orders No. 21, so far as relates to means for shoeing horses of light batteries.

I agree with Major Hunt in opinion as to the defective organization of light artillery companies. The organization should be such as to render them independent of arsenal workshops for the ordinary repair

of their batteries and their equipment, or they should not be sent beyond the reach of such shops. Tools, &c., for repairs in the field, in ample quantities, form part of the equipments of the batteries, and competent mechanics only are wanted to make them as effective as they ought to be. The rate of pay of the private soldier is not sufficient to induce good mechanics to enlist; it ought to be at least \$25 per month, and I am of opinion that five men, at least, with that rate of pay, should be by law added to each company of light artillery, that is to say, 2 smiths or farriers, 2 carriage makers, and 1 saddler or harness maker.

The practice of extra compensation for services that form part of the soldier's duty is liable to great abuse and leads to evil consequences, and should be avoided as far as possible.

Until the addition of five mechanics to each company, as above recommended, can be effected by law, I would suggest that four enlisted men of the Ordnance Department, of the first two grades above mentioned, might be temporarily attached to each company of light artillery, and required to perform the usual duties of the company as well as that of a mechanic.

It is believed that the fourth section of the act of Congress approved February 8, 1815, will form a precedent for such a course; and the act of June 18, 1846, authorizes the Secretary of War to increase the number of enlisted men of the Ordnance Department to such an extent as in his judgment the public may require.

Major Hunt's communication is herewith returned.

Respectfully, &c.,

H. K. CRAIG,
Colonel of Ordnance.

Col. S. COOPER,
Adjutant-General U. S. Army, Washington.

[Senate Docs., 1st session, 36th Congress, vol. 3, p. 1100.]

ORDNANCE OFFICE,
Washington, October 26, 1859.

SIR: I have the honor to submit the following report of the principal operations of the Ordnance Department, during the last fiscal year, with such remarks and suggestions as the affairs of the department appear to call for:

FISCAL AFFAIRS.

Amount, as per last year's report, undrawn from the Treasury on the 1st July, 1858	\$385,535 12
In the hands of disbursing officers, same date	56,029 97
Amount of appropriations for the fiscal years 1859-'60, including the fixed annual appropriation for arming and equipping the militia	1,904,863 00
Received during the year on account of damages to arms in the hands of troops, chargeable to them, and from sales of condemned stores and all other sources not before mentioned.....	86,411,79
Total	2,432,839 88
Amount of expenditures during the year	1,616,799 91
In the government depositories, to the credit of disbursing officers, 30th June, 1859	67,308 45
Remaining in Treasury same date.....	748,731 52
Total	2,432,731 52

The accounts of all the disbursing officers of the department have been regularly rendered to this office, where they have been examined, and transmitted to the proper accounting officer of the Treasury for settlement. The estimates for the next fiscal year have been carefully prepared, and include only such objects as are considered of primary importance, with the amounts requisite for their execution. They exceed, in some cases, the amounts last appropriated for similar purposes. This excess arises from the reduction of those appropriations below the estimates, causing a necessity for a larger amount of supplies during the coming year, to replace those worn out in service, and from losses, by shipwreck, of supplies sent to the Pacific coast. Explanations in detail will be found annexed to the several items as they occur in the estimates.

ARMAMENT OF FORTIFICATIONS.

The means available under this appropriation have been applied to repairing and keeping in good order the armament at the forts; to supplying additional armament where most required; to paying for cannon, shot and shells, and materials for gun-carriages, implements, and equipments, and to the manufacture of the same at the arsenals. The principal articles procured by fabrication, at the arsenals, and by purchase, are as follows, viz: 87 42-pounder guns; 5 10-inch mortars; 2 columbiads; 73 casemate carriages; 81 barbette carriages; 19 coehorn mortar beds; 18 barbette top carriages; 42 casemate chassis; 7,340 shells, for heavy cannon and mortars; 2,260 cannon balls, different calibers.

In consequence of the rapid decay of the material, wood, of which seacoast and garrison carriages are mainly composed, particularly at our fortifications, which are seldom kept with garrisons of adequate strength to take care of the armament, and for the most part without any garrison, it became necessary to resort to a more durable material. Experiments were accordingly instituted to ascertain whether suitable gun-carriages, for permanent fortifications, might not be made of iron; and if so, the best forms, dimensions, and other details of their construction. These experiments have resulted in complete success. Iron carriages have been devised even more convenient for service than those of wood, and, at the same time, fully as cheap in first cost; whilst their far greater durability and facility of transportation and storage render the economy of using that material a very important item in the amount of expenditure necessary for establishing and maintaining our system of seacoast and frontier defenses. Measures have been adopted for procuring supplies of iron, and for the fabrication, at the arsenals of construction, of these gun-carriages to such an extent as appropriations available for the purpose will admit.

The tests of gun-metal and experiments on heavy ordnance, for which appropriations were made, have been carried on, as far as time would allow; and though not yet complete, the results so far reached, and the processes by which they have been attained, are useful and interesting. The several reports of the officer engaged in this work are deemed of sufficient general interest, both practically and scientifically, to warrant their publication; and I shall have them revised and arranged by him for that purpose, preparatory to submitting them to your examination with that view. Trials for endurance, made during the year, have shown that our heavy cannon, of the last adopted forms, dimensions, and weight, may be relied on for a much larger number of discharges than they will ever probably be required to withstand in the course of

service. Six columbiads, of different calibers, different kinds of metal, and from different foundries, have been subjected to one thousand rounds each, with service charges, and then to a further test of twenty rounds each, with increasing charges, without a failure in any instance.

All that is now wanting to insure safe and reliable iron cannon for the government service is a *national foundry*, where complete uniformity of fabrication can be enforced. The advantages of such an establishment are admitted by all who have investigated the subject; and I repeat the recommendation heretofore made, that it be brought to the notice of Congress for the requisite legislation to effect the object.

ORDNANCE, ORDNANCE STORES, AND SUPPLIES.

From expenditures under this appropriation during the fiscal year, the principal articles procured by fabrication at the arsenals and by purchase, are as follows, viz: 11 caissons; 12 mortar wagons; 32 traveling and portable forges; 14 24-pounder siege carriages; 300 Sharp's carbines; 1,924 Colt's pistols; 500 Adams's pistols; 800 cavalry sabers; 695 rounds of ammunition for field service; 2,982,110 cartridges for small-arms; 996 infantry cartridge-boxes; 849 infantry cartridge-box belts; 100 bayonet scabbards, with frogs; 1,100 gun-slings; 2,344 cap-pouches; 5,504 waist and saber belts; 635 sword-knots; 1,732 holsters for Colt's pistols; 7,061 saddle blankets; 1,305 sets of horse equipments; 200 barrels of gunpowder; 1,500 pounds mixed powder; 3,000 pounds pulverized niter; 500 pounds pulverized charcoal; 1,100 pounds pulverized sulphur; 6,800,700 percussion caps; 8,030,000 Maynard's primers; 80,800 friction primers.

The arms, ammunition, military equipments, and other ordnance supplies furnished to the United States troops during the year ending 30th June, 1859, are shown in the statement hereto annexed, marked C.

The subject of horse equipments has been fully examined and considered, with the aid of the practical experience of officers of the different mounted corps, for the purpose of devising patterns most suitable for service, of the least cost, and, at the same time, of attaining uniformity. The result has been the adoption of a new uniform model for these equipments, a supply of which is in course of manufacture. The attention of the Ordnance Department has been given to the subject of *rifle cannon* and projectiles for the same. Many varieties of such cannon and projectiles have been devised and brought to the notice of the department for examination. Mere examinations, however, cannot go further than to indicate the correctness, or otherwise, of the principle on which each device is based, and thus determine whether it may not be worthy of trial. Actual experiment is necessary for a comparison of the relative merits of the different devices and the selection of the best. Such experiments have been commenced at one of our arsenals, under the direction and supervision of a board of artillery and ordnance officers. They have not yet reached any definite result, and are still in progress. Much time and attention has been bestowed on experiments and tests of gunpowder with a view to ascertain the composition and manufacture of a powder which will impart a given velocity and range to a projectile, with the least strain or injury to the gun. The results so far attained have not been sufficiently definite and uniform to afford a satisfactory solution of the problem. Of the many varieties of the breech-loading carbines which have been presented as suitable for the mounted service, no one has as yet exhibited, on actual trial in service, such marked superiority as to warrant its general adoption as the best

arm. There are several now in use by the troops, either of which is probably an effective arm for service. Uniformity of armament, for the same kind of service, is, however, essential both for tactical instruction and for adaptation to ammunition in depot, and the one arm to be adopted must be not only an effective arm, but the most effective of the kind. Further trials, and more extended experience, will be requisite for the selection which may yet fall on an arm not yet invented. It is not to be inferred, from our constant endeavors at improvement in arms or other war materials, that we regard our present system of military armament and supplies as in any degree behind those of other nations in quality or efficiency. But our aim is to advance and to encourage the application of scientific knowledge and mechanical skill to improvements in arms or any other objects pertaining to the business of the profession.

ARMING AND EQUIPPING THE MILITIA.

Statement A, hereto annexed, shows the apportionment of arms, as directed by law, to the militia of the several States and Territories. The principal articles obtained on this account during the past fiscal year, by fabrication at the arsenal and by purchase, are as follows, viz: 18 bronze howitzers; 28 field carriages; 20 caissons; 700 Sharp's carbines; 80 Colt's rifles; 4,436 Colt's pistols; 2,700 sabers and swords; 5,426 infantry cartridge boxes; 6,453 infantry cartridge-box belts; 13,489 saber, sword, and waist belts; 7,340 bayonet scabbards, with frogs; 9,940 sword knots; 6,377 cap pouches; 179 sword knots; 2,028 carbine and rifle cartridge boxes; 284 rifle pouches.

The means applicable to "arming and equipping the whole body of the militia of the United States" are the same now as were provided for that purpose half a century ago. If no more than sufficient when the act of 1808, making appropriations for the purpose, was passed, they are evidently insufficient now. The expediency of asking for legislation to increase the standing appropriation for this object is therefore suggested. The quantity and kinds of arms and equipments furnished to the militia during the past year are shown in statement B, hereto annexed.

NATIONAL ARMORIES.

The manufactures at these establishments during the past fiscal year include 17,989 rifle-muskets, 2,466 rifles, 6 fencing and 1,502 cadet's muskets, with 94,800 implements for small-arms, consisting of bullet-molds, screw drivers, wipers, &c., and 46,492 component parts of arms for issue to posts and troops, to be used in repairs. In addition to these articles of manufacture, much work has been done in the erection, repairs, and improvement of buildings, raceways, and public grounds, and the construction and improvement of machinery and tools. These operations are stated in detail in the annexed reports from the superintendents, which are referred to for more particular information on the subject. The requisite machinery for welding gun-barrels by rolling has been put in operation at one of the armories, and is found to be a great improvement on the former method of welding under hammers. It is to be used hereafter at both armories.

ARSENALS AND DEPOTS.

The means applicable to the extension and maintenance of arsenals and ordnance depots have been applied to the objects specified in the

estimates on which appropriations for these establishments were based. The work accomplished consists, generally, of repairs and preservation of buildings and sites, the erection of new and additions to old buildings, and all improvements of a permanent character, including purchases of land where specially authorized by law. The reports of the commanding officers of the respective arsenals, hereto annexed, give a detailed account of this work and of other principal operations at each, and are referred to for particulars.

The ordnance depot at Fort Leavenworth is undergoing enlargement by the erection of a permanent storehouse and magazine. This was found necessary to meet the requirements of the large bodies of troops concentrated there for expeditions, or re-enforcements to the troops in the military departments on the western frontiers. The cost was defrayed from the appropriation for contingencies of arsenals.

Obstacles in the way of selecting and obtaining valid titles to suitable sites have prevented the erection of permanent buildings for arsenals in the Territories of New Mexico and Washington, and have compelled a resort to temporary depots for the supply of the troops in those Territories.

I am, sir, very respectfully, your obedient servant,

H. K. CRAIG,

Colonel of Ordnance.

Hon. J. B. FLOYD, *Secretary of War.*

[Extract from Annual Report of Secretary of War, 1859.—Mess. and Docs., vol. 2, 36 Cong. 1st sess.—1859-'60.]

STAFF DEPARTMENTS AND CORPS.—I again bring to your notice, and urge upon your special attention, the recommendation which I have heretofore made on the subject of the staff corps. Longer experience convinces me more and more of the beneficial effects to the military service which would result from the adoption of these recommendations. A bill "for the better organization of the general staff and of the engineer and ordnance departments" was reported from the Committee on Military Affairs at the last session of Congress, which embodied the main principles of my suggestions and recommendations. With some modifications of its details, tending to promote economy by a reduction of additional officers therein provided, that bill if enacted into a law, would bring about suitably the end in view. The general effect of its provisions will be to throw open the staff duties to the whole army, to bring the staff and line officers into more frequent and intimate connection, and to provide for returning to their regiments such officers as may be found to have no aptitude for staff duties. Now, under the existing organization, such officers holding a commission but in one branch of the service cannot be transferred, however much the interest of the service or their own tastes or wishes may render such transfer desirable. By the proposed organization, there will be a few permanent officers in each of the staff departments and corps, who, by their long experience in the special duties pertaining to each, will be well qualified to take general charge of, and give general directions to its business, leaving the execution of the details to the officers of the line. These officers will acquire thereby a knowledge of and a familiarity with staff duties, which will be of incalculable benefit in time of war, when large armies are to be organized and kept in the field. The proposed arrangement will effect, moreover, the very desirable end of making every officer, on first joining

the army, serve for a time in a regiment, and thus become practically acquainted with soldiers' duties and the actual wants of troops in service before he can become eligible to appointment in any of the staff departments or corps. No officer will be appointed permanently to any of them (although the competition for such appointments will be equally open to all) until he shall have shown an aptitude and talent for its special duties; thus adding a practical standard of fitness to the present theoretical one of class standing during pupilage at the Military Academy. Such a diffusion of the knowledge of the duties of the staff departments and corps among the whole army, instead of confining it, as at present, to a few officers, will be of great benefit to the military service of the country.

* * * * *

ORDNANCE, ARMS, AND EQUIPMENTS.—I have ordered the estimates from the Bureau of Ordnance to be made mainly in conformity to the policy which the action of the last Congress seemed to indicate by its appropriations. I cannot forbear to express the opinion, however, that to abridge the manufacture of arms is, to say the least, a measure of very doubtful economy, and may prove in the end to be both dangerous and expensive. A foreign war would create an immediate demand for an immense number of arms, probably enough, nearly, to strip all our arsenals and to require the purchase of further supplies from private manufacturers, at whose mercy the government would be in the emergencies of war.

Besides the manufacture of arms, other expenses are necessarily incurred in experiments and improvements in them, which are of the greatest importance to the service of the country. That constant progress in the improvement of arms and other appliances of warfare which has of late characterized the military service of other nations has been, up to this time, no less active in ours. The experiments which have been in progress for some time past to ascertain the fitness of iron for the construction of gun-carriages for sea coast and garrison cannon have resulted in complete success. They demonstrate the practicability of using iron in place of wood for the fabrication of such carriages, not only to very great advantage in point of economy, but also in quality. The ultimate saving in money to the country by this manufacture can hardly be estimated. Gun-carriages heretofore have not only been expensive, but it has been found impossible to preserve the wood of which they were constructed from decay. So that each gun in all our forts must be remounted once every ten years to be fit for service. The substitution of iron for wood has remedied this perfectly, and the gun-carriage may now be considered as indestructible. Models of wrought iron sea-coast and garrison carriages have accordingly been adopted, and iron will be used in their fabrication hereafter.

Improvement has been introduced, also, in the forms of cannon, greatly increasing their endurance under repeated discharges, and rendering them consequently more reliable for service. In view of the not unfrequent accidents from the bursting of iron cannon, and the disastrous consequences that may result therefrom, it is important that the adopted models should be the best calculated for strength, and that none but the best material should be used in, and the best processes applied to, their fabrication. Experiments to ascertain the best model have been instituted and carried on with satisfactory results. They are still in progress, with special reference to a class of cannon of heavier caliber, for the more complete determination of the best method of distributing the given weight of metal throughout the different parts of the cannon so as to obtain the greatest strength. To secure effectually the best material

and mode of fabrication will require the establishment of a national foundry, and I again urge this important measure, and repeat the recommendation, so often heretofore made, for the requisite legislation to effect it.

The subject of rifled cannon and projectiles has received much attention, and careful experiments have been instituted to test a variety of such contrivances. It is not deemed advisable to proceed to the manufacture of such cannon, beyond those required for experimental purposes, until full and fair trials shall have demonstrated practically, which of the various inventions possesses most advantages, or whether a combination of the advantages peculiar to several of them may not furnish the best government model.

New patterns of horse equipments for all the mounted troops have been adopted, and their manufacture has been commenced to the extent permitted by the appropriation applicable thereto. It is, however, insufficient to meet the wants of the service in this respect, in consequence of its reduction below the estimate. The new pattern was adopted after careful consideration of the views on the subject of experienced officers of the mounted service, taken in connection with the question of the greatest economy compatible with fitness for that service.

The operations at the national armories and the arsenals in the manufacture of small arms and other supplies pertaining to this branch of the War Department are stated in detail in the accompanying report of the Colonel of Ordnance.

I desire to call attention to the existing law for arming and equipping the whole body of the militia of the United States, which was passed in 1808. The provision then made for the purpose remains the same at this day, and is insufficient for its effectual accomplishment. This is evinced by frequent requisitions and urgent applications from States and Territories for advances of arms and equipments beyond their regular quotas.

BREECH-LOADING ARMS.—Under the appropriations heretofore made by Congress to encourage experiments in breech-loading arms very important results have been arrived at. The ingenuity and invention displayed upon the subject are truly surprising, and it is risking little to say that the arm has been nearly, if not entirely, perfected by several of these plans. These arms commend themselves very strongly for their great range and accuracy of fire at long distances; for the rapidity with which they can be fired: and their exemption from injury by exposure to long-continued rains. With the best breech-loading arm, one skillful man would be equal to two, probably three, armed with the ordinary muzzle-loading gun. True policy requires that steps should be taken to introduce these arms gradually into our service, and to this end preparations ought to be made for their manufacture in the public arsenals.

[270 and 274 D., 1859.]

ORDNANCE OFFICE,
Washington, November 26, 1859.

SIR: From the inclosed correspondence it will be seen that General Wool has recently given orders to Bvt. Col. Harvey Brown, interfering with the arsenal at Old Point Comfort, Va., which orders are in disregard of the instructions from the War Department of the 7th April, 1843, published by the Adjutant-General of the army on the 8th of that

month, confirmed by the explicit decision of the Secretary of War in the very case in point (a copy of which is inclosed) and reiterated in the second article of the Regulations for the Ordnance Department, published by the Secretary of War for the government of all concerned, under date of October 12, 1852.

This interference of General Wool, in disregard and violation of repeated instructions and of regulations of the War Department, is respectfully brought to your notice for the purpose of invoking the interposition of that department for the vindication of its authority by the enforcement of respect to its instructions and observance of its regulations.

Respectfully, your obedient servant,

H. K. CRAIG,
Colonel of Ordnance.

Col. S. COOPER,
Adjutant-General, U. S. Army.

[Inclosure.]

ORDNANCE OFFICE,
Washington, December 31, 1851.

SIR: Having learned that application has been made for quarters at Fort Monroe Arsenal by an officer of artillery at Fort Monroe, and that it has been entertained by the commanding officer of the fort and transmitted to Washington through General Wool, I deem it not improper to submit to you the following remarks on the subject, supposing that the application may be laid before you. The ground of the application can only be laid on an erroneous idea of the meaning of the 953th paragraph of the General Regulations for the Army, edition of 1841. That paragraph gives the right of choice of quarters from the highest to the lowest grades, but only to quarters which have "been designated by the officer of the Quartermaster's Department." In its last clause it is expressly stated: "In the exercise of their right of choice officers will be limited to the sets of quarters as arranged by the Quartermaster's Department." Now, it is well known that the quarters at Fort Monroe Arsenal are not and never have been under the control, in any degree or manner, of the Quartermaster's Department, and that they never have been, nor can be while *arsenal quarters* are under such control, either for designation or any other purpose, by the officers of that department. They are, therefore, not only not included in the provisions of the regulation above mentioned, but are expressly excluded from being subject to the right of choice mentioned therein. Again, these quarters were built by virtue of an act of Congress, approved July 2, 1836 (chap. 268, vol. 5, U. S. Stat. at L., p. 78), making an appropriation "for the quarters of officers at Fort Monroe Arsenal. They are, therefore, designated by law as quarters for the officers of the arsenal and not the officers of the fort. And further, the question is a settled one. The regulation of the War Department of the 7th April, 1843, provides, in order (I quote its words) "to prevent any conflicts from arising among the different corps of the Army in relation to quarters, barracks, arsenals, &c., the Secretary of War has laid down the following rules which will govern all cases except where a deviation may, under special circumstances, be found necessary, when directions for the purpose will be given by the War Department. * * * Arsenals being under the control of the Ordnance Department, will not be interfered with by any other branch of the service."

I am, very respectfully, your obedient servant,

H. K. CRAIG,
Colonel of Ordnance.

Hon. C. M. CONRAD,
Secretary of War.

[Indorsement.]

Officers of the line at Fort Monroe have clearly no right to interfere with the ordnance quarters. The arsenal is a permanent establishment, and although within the limits of the fort is entirely distinct from it. Besides, these quarters appear to have been erected out of an appropriation made expressly for quarters of the arsenal, and have ever since been used exclusively for that purpose. No reason is perceived why this arrangement should be changed. As regards the engineer quarters I have entertained some doubts. Fort Monroe can hardly be considered "a new work in progress of construction," inasmuch as it is substantially completed and has been long occupied by troops, and under the command of the officer who commands them. Nevertheless, there are portions of the original plan that have not yet been built, and an estimate

for the purpose of carrying on the work is contained in the annual estimates of the present year. Besides this, the same engineer officers who have charge of this work are also in charge of Fort Calhoun, the work on which will, it is intended, shortly be resumed. For these reasons it is deemed unnecessary to interfere with the present distribution of quarters.

C. M. CONRAD,
Secretary of War.

JANUARY 13, 1852.

[Inclosure.]

FORT MONROE ARSENAL, VA.,
November 19, 1859.

SIR: I have the honor to transmit herewith for your information and action thereon, the following papers and letters, which were handed to me by Lieutenant Baylor, upon my return from a short absence from this arsenal, viz:

1. Major General Wool's decision respecting quarters.
2. Letter from Lieutenant Baylor, commanding Fort Monroe Arsenal, to Lieutenant Drum, adjutant, requesting a copy of Colonel Brown's communication to General Wool on the subject of a scarcity of quarters, as also of his instructions to Lieutenant Grey, A. A. Q. M.
3. Lieutenant Drum's reply.
4. Copy of Colonel Brown's letter to the Adjutant-General of the army, with General Wool's indorsement thereon.
5. Lieutenant Drum's letter to Lieutenant Grey, directing him to notify Lieutenant Baylor to select as quarters one room and a kitchen in the ordnance quarters, and to open the unoccupied portions of buildings for selection by the officers of the post of Fort Monroe.
6. Letter from Lieutenant Baylor, commanding Fort Monroe Arsenal, declining to make the selection or to turn over the public property without proper authority.
7. Lieutenant Baylor's letter to Colonel Brown withdrawing his letter, numbered 6.
8. Colonel Brown's order releasing Lieutenant Baylor from arrest.

You will perceive from these papers that Colonel Brown assumed command of Fort Monroe Arsenal, and exercised control over public property belonging to the Ordnance Department, for which I, as commanding officer of Fort Monroe Arsenal, am responsible, and that he arrested Lieutenant Baylor, then commanding the arsenal, for refusing to surrender the property to him. I have to-day been informed by Colonel Brown that he considers the officers' quarters belonging to Fort Monroe Arsenal as being in charge of Lieutenant Grey, the acting assistant quartermaster of Fort Monroe, and that he has authority, as commanding officer of Fort Monroe, to arrest me for refusing to obey his order. He has published a post order announcing that a portion of the officers' quarters belonging to Fort Monroe Arsenal are open for selection by the officers of Fort Monroe. I do not concur in opinion with Colonel Brown on either point, and as the questions of disagreement between us are highly important, and might seriously affect the public service, I request that they may immediately be referred to proper authority for decision.

Lieutenant Baylor's letter to Colonel Brown, declining to obey his orders to select quarters, and refusing to turn over the public property intrusted to his care, receives my full approval.

Respectfully, your obedient servant,

A. B. DYER,
Captain of Ordnance.

Col. H. K. CRAIG,
Chief of Ordnance, Washington, D. C.

[Inclosure.]

HEADQUARTERS ARTILLERY SCHOOL,
Fort Monroe, Va., November 13, 1859.

SIR: The following decision was received from department headquarters in answer to a communication addressed by Brevet Colonel Brown to the Adjutant-General, on the subject of the scarcity of quarters at this post:

"HEADQUARTERS DEPARTMENT OF THE EAST,
"Troy, N. Y., November 9, 1859.

"The Commanding General deems it unnecessary to forward this communication to the Secretary of War. His orders in the case are that it, after all the quarters heretofore

occupied by the regular garrison of Fort Monroe are assigned in their proper proportion, there shall yet be insufficient room for the officers there stationed, the quarters belonging to the Ordnance Department shall then be assigned, care being taken that the rights of the officers of ordnance, in respect to the first choice therein, shall in no manner be affected thereby.

"Respectfully returned to Colonel Brown, commanding Fort Monroe.

"By command of Major General Wool.

"GEO. DEAS,
"Assistant Adjutant-General."

I am, sir, very respectfully, your obedient servant,

RICHARD C. DRUM,
First Lieutenant, Fourth Artillery, Adjutant.

COMMANDING OFFICER of Fort Monroe Arsenal.

[Inclosure.]

FORT MONROE ARSENAL, VA.,
November 16, 1859.

SIR: Will the colonel commanding Fort Monroe, Va., furnish me with a copy of his communication to General Wool, on the subject of a scarcity of quarters at his post, also with a copy of his instructions to Lieutenant Grey, acting quartermaster at Fort Monroe, Va., on the same subject, which instructions have only been communicated to me orally by Lieutenant Grey?

Very respectfully, your obedient servant,

T. G. BAYLOR,
Brevet Second Lieutenant of Ordnance.

Lieut. R. C. DRUM, Adjutant.

[Inclosure.]

HEADQUARTERS ARTILLERY SCHOOL,
Fort Monroe, Va., November 16, 1859.

SIR: Inclosed you will receive a copy of Colonel Brown's letter, addressed to the Adjutant-General, with the indorsement thereon of the general commanding the Department of the East, also a copy of instructions to Lieutenant Grey, acting assistant quartermaster at this post. A certified copy of General Wool's indorsement was furnished the "commander of Fort Monroe Arsenal" on the day of its receipt at this post.

Very respectfully, your obedient servant,

RICHARD C. DRUM,
Lieutenant and Adjutant.

Lieutenant BAYLOR,
Ordnance Department, Fort Monroe, Arsenal.

HEADQUARTERS ARTILLERY SCHOOL,
Fort Monroe, Va., November 5, 1859.

COLONEL: I respectfully represent that there are not now sufficient quarters for the officers of this post, and that when the officers under order for the school shall arrive, the quarters will be so insufficient as to cause much discomfort.

I request that the attention of the Secretary of War may be called to this subject.

I would also respectfully represent that while the officers of artillery are so restricted in quarters, those of the ordnance *within the walls of the fort* have more than they can occupy. A brevet second lieutenant of ordnance having, as I am told, *nine rooms* in a modern, well-built brick house, more by one-half and much better than the surgeon or oldest captain of artillery at the post occupies, and more than four times as much as second lieutenants of artillery can have; and even the sergeants and mechanics of ordnance have more and better quarters than nine-tenths of the subalterns at the post.

I cannot think that this marked distinction, within the walls of the same post, between officers of different corps to be either proper or just; and I therefore respectfully invite the attention of the Secretary to it.

I am, colonel, very respectfully, your obedient servant,

HARVEY BROWN,
Major, Second Artillery, Brevet Colonel, and Commanding.

Col. S. COOPER,
Adjutant-General U. S. Army, Washington, D. C.

[Inclosure.]

HEADQUARTERS ARTILLERY SCHOOL,
Fort Monroe, Va., November 15, 1859.

SIR: Agreeably to instructions received from the headquarters Department of the East, the commandant directs that you will notify Lieutenant Baylor, Ordnance Department, to make his selection of quarters (one room and a kitchen) in the building now occupied by him; the unoccupied portion of the buildings (ordnance quarters) will be open for selection by the officers of this post.

Very respectfully, your obedient servant,

RICHARD C. DRUM,
Lieutenant and Adjutant.

Lieutenant GREY,
Second Artillery, Acting Assistant Quartermaster, Fort Monroe, Va.

[Inclosure.]

FORT MONROE ARSENAL, Va.,
November 16, 1859.

SIR: Your instructions to Lieutenant Grey, acting quartermaster at Fort Monroe, Va., with reference to my quarters, telling me to make my selection of one room and a kitchen and that the remainder are to be turned over by you for selection by the officers of artillery stationed at Fort Monroe, Va., have been duly made known to me, though not in writing, as they should have been. I must respectfully decline obeying those instructions for the following reasons: In the first place the ordnance quarters here were built with an ordnance appropriation, and are to be used, therefore, *only* for ordnance purposes, and *cannot* be used for *any other* purpose or as quarters by *any other corps*, except by direction of the President of the United States. In the second place, if I obeyed your order I would be guilty of the grave charge of surrendering public property now in my possession and for which I am held accountable, without the proper authority. And, lastly, not being under your command, I cannot see how I am to obey an order from you, and especially such an order.

Very respectfully, your obedient servant,

T. G. BAYLOR,
Brevet Second Lieutenant of Ordnance.

Col. H. BROWN,
Commanding Fort Monroe, Va.

[Inclosure.]

FORT MONROE ARSENAL,
November 17, 1859.

SIR: I beg leave to withdraw the communication addressed to you on the 16th instant, refusing to obey an order making a selection in my quarters of one room and a kitchen, as it is my intention to comply with the order.

Very respectfully, your obedient servant,

T. G. BAYLOR,
Brevet Second Lieutenant of Ordnance.

Col. H. BROWN,
Commanding Fort Monroe, Va.

[Inclosures.]

HEADQUARTERS ARTILLERY SCHOOL,
Fort Monroe, Va., November 17, 1859.

[Orders No. 239.]

Lieutenant Baylor having declared his readiness to obey the orders given him, is hereby released from arrest.

By order of Colonel Brown.

R. LODOR,
Second Lieutenant, Fourth Artillery, Acting Adjutant.

[Indorsement.]

Respectfully submitted to the Secretary of War.

S. COOPER,
Adjutant-General.

ADJUTANT-GENERAL'S OFFICE, November 28, 1859.

[Incl sure.]

FORT MONROE ARSENAL,
November 29, 1859.

SIR: Your letter to me of the 21st of November instant on the subject of officers' quarters at Fort Monroe Arsenal, together with the published regulations of the War Department issued from the Adjutant-General's Office on the 8th of April, 1843, and sent to me from your office on the 18th instant, have been shown to the commanding officer of Fort Monroe, Brevet Colonel Dimick.

In my letter to you of the 19th instant, transmitting a copy of General Wool's instructions to Colonel Brown, and other papers referring to the subject, I advised you that Colonel Brown had informed me that his quartermaster, Lieutenant Grey, had possession of the quarters. He adhered to that opinion while he continued in command of Fort Monroe, and when relieved by Brevet Colonel Dimick turned over the quarters to him. Colonel Dimick, with the orders of General Wool on the subject before him, and with the information given him by Colonel Brown, that he held possession of and turned over the quarters to him to be assigned to the officers of his command, feels it to be his duty to hold possession of them, and to assign them, unless otherwise instructed by competent authority.

I have again respectfully to urge that the questions which I stated in my letter of the 19th instant were at issue between Colonel Brown, the commander of Fort Monroe, and myself, the commander of Fort Monroe Arsenal, may be decided by proper authority, and the decision made known to Colonel Dimick and myself. Both Colonel Dimick and myself are anxious to have the decision made and promulgated. This communication is made with the knowledge and approval of Colonel Dimick.

Respectfully, your obedient servant,

A. B. DYER,
Captain of Ordnance.

Col. H. K. CRAIG,
Chief of Ordnance, Washington, D. C.

[1st indorsement.]

ORDNANCE OFFICE,
December 1, 1859.

Respectfully transmitted to the Adjutant-General with the request that it may be submitted to the Secretary of War, in connection with the communication from this office of the 26th instant, on the subject of the interference of the commanding general of the Eastern Department with the property of the Ordnance Department at the Fort Monroe Arsenal. This arsenal has become one of great importance to the Ordnance Department and to the military service, on account of the ample space in the neighborhood for preliminary experiments with cannon, &c., not attainable near any other of our arsenals.

The interference of the commanders of the military department and of the fort will exercise an injurious effect, and it is hoped that the decision of Secretary Conrad of January 13th, 1852, may be carried out.

H. K. CRAIG,
Colonel of Ordnance.

[2d indorsement.]

Respectfully submitted to the Secretary of War in connection with the communication alluded to in the foregoing indorsement, which was laid before the War Department November 28, 1859.

S. COOPER,
Adjutant-General.

ADJUTANT-GENERAL'S OFFICE,
December 2, 1859.

[3d indorsement.]

This question has already been settled by the within decisions of the War Department, of which General Wool could not have been aware when he issued his instructions in the case. Copies of these decisions

will be furnished to the general and also to the commanding officer of Fort Monroe, for their information and government.

* * * * *

J. B. FLOYD,
Secretary of War.

WAR DEPARTMENT, *December 29, 1859.*

ADJUTANT-GENERAL'S OFFICE,
Washington, January 3, 1860.

GENERAL: The attention of the Secretary of War having been called to your recent instructions to the commanding officer of Fort Monroe, Va., respecting the quarters belonging to the Ordnance Department at that post, the following decision has been given in the matter:

"This question has already been settled by the within decisions of the War Department, of which General Wool could not have been aware when he issued his instructions in the case. Copies of these decisions will be furnished to the general and also to the commanding officer of Fort Monroe for their information and government.

* * * * *

"J. B. FLOYD,
" Secretary of War.

"WAR DEPARTMENT, *December 29, 1859.*"

Copies of the decisions to which reference is made by the Hon. Secretary of War are herewith transmitted, and they will also be furnished to the commander of Fort Monroe, as above directed.

I have the honor to be, general, very respectfully, your obedient servant,

S. COOPER,
Adjutant-General.

To Bvt. Maj. Gen. J. E. WOOL,
Commanding Department of the East, Troy, N. Y.

ADJUTANT-GENERAL'S OFFICE, *January 16, 1860.*

Copy respectfully furnished for the information of the Colonel of Ordnance.

S. WILLIAMS,
Assistant Adjutant-General.

NOTE BY ADJUTANT GENERAL.—The decisions above referred to are the regulations of the War Department, dated April 7, 1843, in relation to quarters, &c., copy herewith; and the indorsement of the Secretary of War, dated January 13, 1852, upon the letter addressed to him by the Colonel of Ordnance December 31, 1851, respecting an application by an officer of artillery for quarters at Fort Monroe Arsenal. The latter decision is presumed to be on record in the Ordnance Office.

[Letters to W. D., vol. 12, p. 331.]

ORDNANCE OFFICE,
Washington, November 25, 1859.

SIR: I have communicated to all the founders who are to make heavy ordnance for the land service your instructions of the 16th instant, to have all such cannon cast hollow, after Redman's plan, with a view to making the arrangements with them as directed in those instructions. Answers have been received from three of the foundries, viz, the South

Boston, the West Point, and the Tredegar, which are respectfully submitted herewith.

In view of the facts that these founders had previously received and accepted orders for cannon to be cast in the ordinary manner, that they have made their preparations for casting in that manner, and that they will be subjected to additional expense and to delay in making preparations for the new plan of casting; in consideration also of the fact that the failures of heavy cannon are attributable, in my opinion, to defective models rather than to the mode of casting, and that the comparative tests of the two models of casting are yet incomplete, and have not established a decided superiority of one mode over the other—in view of all these considerations, I suggest and recommend the founders may be permitted to execute the orders given prior to your instructions of the 16th instant, by casting cannon in the ordinary manner, after the revised and approved models.

Respectfully, &c.,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JOHN B. FLOYD,
Secretary of War.

[Letters to W. D., vol. 12, p. 368.]

ORDNANCE OFFICE,
Washington, March 17, 1860.

SIR: Experiments have recently been made at the Fort Monroe Arsenal with a wrought iron cannon of 1,131 pounds weight and a bore of 3.67 inches diameter, rifled. The ranges of this gun at low elevation, viz, $2\frac{1}{2}^\circ$, being about 1,000 yards, were attended with very satisfactory accuracy; thus demonstrating that the form of the projectile used can be relied upon. As for the superiority of rifled cannon over smooth-bore guns, and in fact the absolute necessity for their introduction into our service, it is no longer an open question.

Being satisfied that the experiments above mentioned would fully justify a more extended trial, I have now to ask authority to cause four more guns of similar construction except in caliber to be made for issue to a company of light artillery in the field.

The caliber of these guns I propose shall not exceed 3.5 inches; which will increase the weight of the gun about 28 pounds, making the total weight of each gun about 1,160 pounds. Their cost will not exceed \$350 each.

With much respect,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JOHN B. FLOYD,
Secretary of War.

[279 W. D., 1860.]

ORDNANCE OFFICE,
Washington, April 10, 1860.

SIR: The law of 1808 for arming the militia makes no provision for the supply of ammunition. The great changes that have recently been made in arms and ammunition for the military service make it difficult for the State authorities to supply their militia with ammunition of a suitable kind for the arms furnished by the general government under the law.

Under special authority from the War Office ammunition has been occasionally furnished from the arsenals to the militia of States and Territories on payment of the cost thereof. The practice is attended with little or *no* inconvenience to this department, and might be extended to all the States and Territories without loss to the government. I would therefore recommend that I may be authorized to notify the governors that the following-named ammunition will be furnished from the nearest arsenals, when it can be spared, on payment to the commanding officer of the actual cost thereof, viz, cartridges for government small-arms; caps and tape-primers for small-arms; pressed bullets for small-arms; fixed ammunition for field-guns; cannon balls for field-guns; spherical case shot for field-guns; canister shot for field-guns (fixed); friction tubes, lanyards, and portfires.

I am, sir, respectfully, your obedient servant,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JOHN B. FLOYD,
Secretary of War.

[Indorsement.]

The Colonel of Ordnance will please report whether the sales as recommended can be authorized by the Secretary of War without transgressing the act of March 3, 1825, or any other laws on the subject.

J. B. FLOYD,
Secretary of War.

WAR DEPARTMENT, *April 21, 1860.*

[Letters to W. D., vol. 12, p. 382.]

ORDNANCE OFFICE,
Washington, 25th April, 1860.

SIR: In answer to your indorsement on the letter from this office of 10th instant on the subject of the proposed sale of certain ammunition to the States and Territories for the use of their militia, and which indorsement is as follows: "The Colonel of Ordnance will please report whether the sales, as recommended, can be authorized by the Secretary of War without transgressing the act of March 3, 1825, or any other law on the subject," I have now the honor to state that although the law referred to only authorizes the sale of unserviceable or unsuitable ammunition, or other public stores, after their having been declared such by the inspectors, and I am not aware of any other law that does give the authority in express terms for the sale of uncondemned property, yet I do not think there is any law that expressly prohibits such disposal of ammunition as that suggested in my recommendation. Nearly all of that ammunition is of a peculiar character, necessary for the use of the arms furnished by the United States to the States and Territories under the law of 1808.

That law makes no provision for the ammunition, and as it can only be procured of good quality from our arsenals, its sale to the States and Territories for the military service of the nation I consider fair and just, even though not *expressly* sanctioned by law.

Its *sale* rather than issue, I deem essential for the purpose of exercising a wholesome influence over its final expenditure, and if the States and Territories should generally avail themselves of an authority to

purchase ammunition from the Ordnance Department it will, by giving more employment to the workmen and mechanics of the arsenals, be decidedly beneficial to the department.

If an express law sanctioning this kind of sale could be obtained, it would, in my opinion, be better, for the reason that the sale of all public property would then unquestionably be restricted to such as had been regularly condemned.

My letter of 10th instant is returned herewith.

I am, sir, very respectfully, your obedient servant,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JOHN B. FLOYD,
Secretary of War.

[206 W. D., 1860.]

COMMITTEE ON MILITARY AFFAIRS AND THE MILITIA,
UNITED STATES SENATE,
May 14, 1860.

SIR: As this committee have now under consideration the subject of increasing the annual appropriation for arming and equipping the militia, they will be obliged for the views of your department as to the extent to which that appropriation should be carried, as suggested by you in your report to the President of 1st December, 1859.

With great respect, I have the honor to be, &c.,

JEFF'N DAVIS,
Chairman.

Hon. JOHN B. FLOYD,
Secretary of War.

[Inclosure.]

WAR DEPARTMENT,
May 22, 1860.

SIR: In answer to your letter of the 14th instant, requesting my views as to the extent to which the appropriation for arming and equipping the militia should be carried, I have the honor to state that, in the suggestion on this subject in my report to the President of the 1st December, 1859, I had in view such a ratio of increase as should be nearly proportionate to the increase of the militia force since the existing annual appropriation of \$200,000 was made in 1808.

That view is strengthened by the increased facilities of intercommunication afforded by telegraph, railways, and steamboats for concentrating in an emergency large bodies of militia from distant points.

To carry out my views of the case will require an increase of the present annual appropriation to at least a three fold extent or to \$600,000, which amount I may add will furnish means to arm and equip as infantry only one hundred men for each Senator and Representative, reserving enough to supply each Territory to the same extent as a State having the least representation in Congress.

JOHN B. FLOYD.

Hon. JEFF'N DAVIS,
Chairman of Committee on Military Affairs, Senate.

[332 W. D., 1860.]

ORDNANCE OFFICE,
Washington, D. C., June 1, 1860.

SIR: By the 1237th paragraph of Army Regulations, arms and accoutrements are authorized to be issued to army officers for their personal use, on the payment by them of the cost value of the articles furnished. This authority does not extend to the issue of horse equipments which have been sought for by officers under similar provision of payment.

I have respectfully to recommend, therefore, that horse equipments to officers of mounted corps be included on the provisions of the above named paragraph.

With much respect,

H. K. CRAIG,
Colonel of Ordnance.

Hon. J. B. FLOYD,
Secretary of War.

[Indorsement.]

Approved.

J. B. FLOYD,
Secretary of War.

WAR DEPARTMENT, June 9, 1860.

[366 W. D., 1860.]

WAR DEPARTMENT,
Washington, June 23, 1860.

SIR: You are selected to take charge of the arms and other military stores which have been prepared by this department for presentation to the Tycoon of Japan, and to accompany them to Jeddo in the United States ship Niagara. One of the mechanics employed at the Washington Arsenal, Mr. John G. Dudley, will accompany you; and I have requested the Secretary of the Navy to provide accommodations for yourself and him on board the ship, and to make such arrangements for paying and subsisting him as you may request. The rate of his pay and the mode of his subsistence will be such as, in your judgment, are reasonable and proper for his services and position.

After executing your commission at Jeddo, you will proceed (on your return journey to this country) by way of the British overland mail route, to visit and examine, professionally, the most important arsenals and military manufactories in Europe and England, taking them in the order in which they most conveniently come in your homeward journey. When you have executed this duty you will return to the United States and report in person at the War Department.

During your absence from the United States on these duties, the usual allowance of mileage (or your traveling expenses as you may prefer) and commutation of fuel and quarters at San Francisco rates will be made to you. An advance of five thousand dollars, under the proviso of the first section of the act of January 31, 1823, will be made to you, for which you will be held accountable under the following appropriations, viz:

Ordnance, ordnance stores, and supplies.....	\$1,000
Transportation of officers' baggage.....	2,000
Commutation of fuel and quarters.....	2,000

As there may be expenditures necessary for the discharge of your duties, which will depend on circumstances and cannot be specifically-

defined, a discretion must be allowed to you in this respect, subject to the approval hereafter of this department. Your accounts for disbursements will, therefore, be rendered to the War Department for preliminary examination and action, before transmission through the proper officers for settlement.

Very respectfully, your obedient servant,

JOHN B. FLOYD,
Secretary of War.

Lient. Col. J. W. RIPLEY,
Ordnance Department, Washington, D. C.

[Miscellaneous Letters, vol. 52, p. 46.]

Indorsement on Major Haskins' letter re-applying for use of laboratory at Baton Rouge Arsenal, for artillery instruction; referred to Ordnance Office by the Adjutant-General United States Army.

ORDNANCE OFFICE, *June 29, 1860.*

Respectfully returned. My indorsement on Major Haskins' letter of the 24th April, 1860, gives my views in regard to his application for the use of the laboratory at Baton Rouge Arsenal for the purposes indicated by him. Such use, if authorized, will establish a precedent applicable to all arsenals in the vicinity of military posts, and will require expenditures (for materials at least), for which there is no appropriation, besides causing an accumulation of manufactured articles beyond what is wanted by the military service, and which cannot be kept long without deterioration. I have no objection to furnishing at the arsenals, or elsewhere, all the means and facilities under control of this department for the proper instruction of troops of all arms, but if any system of instruction involving expenditures of money is to be prescribed, additional appropriations for the military service will be necessary to carry it into effect.

H. K. CRAIG,
Colonel of Ordnance.

[Letters to W. D., vol. 12, p. 408.]

ORDNANCE OFFICE,
Washington, July 11, 1860.

SIR: As the duty of purchasing horses for remounting the companies of light artillery has been transferred from the Quartermaster's to the Ordnance Department, I respectfully request that the balance of the appropriation "for the remounting of the four companies of light artillery" be transferred from the books of the Third Auditor to those of the Second Auditor, through whose office requisitions for funds for the Ordnance Department pass, and where all its accounts are settled. In making this transfer, it is very desirable that the balance should be entered on the Second Auditor's books, under the existing title of the appropriation for the *same object*, viz., "Purchase of horses, &c., for the light artillery." Similar transfers of funds were made by the Treasury Department on September 14, 1855, and July 21, 1859.

Respectfully, &c.,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JOHN B. FLOYD,
Secretary of War.

[492 W. D., 1860.]

WAR DEPARTMENT,
September 15, 1860.

Horse equipments will be added to the list of articles that may be furnished to the States, in lieu of arms, and charged at their cost by their equivalent in muskets.

JOHN B. FLOYD,
Secretary of War.

The COLONEL OF ORDNANCE.

[530 W. D., 1860.]

ORDNANCE OFFICE,
Washington, D. C., September 18, 1860.

SIR: Your order of the 15th instant, directing horse equipments to be placed on the list of articles to be issued to the States under the law of April 23, 1808, and the application of the adjutant-general of the State of Pennsylvania for eight saddles and bridles, under that decision, with your approval for the issue indorsed thereon, have been received. For the reasons below stated, I would respectfully ask a reconsideration of the subject, and a revocation of the direction for such issues.

1st. The law of April, 1808, directs the issue, to the States, only of "arms and military equipments," evidently intending the two latter words to include only what are usually termed accouterments; and, that such is the restrictive meaning of the law, is, I think, clearly shown in the third section, in the words, "that all arms procured by virtue of this act," &c.

2d. Up to this time, although several attempts have been made, the War Department has refused to include horse equipments among articles to be issued to the militia under the law of 1808.

3d. The State of Pennsylvania having drawn its full quota of arms for the year 1860, has received the extraordinary indulgence of an issue in advance, to a limited extent, for the year 1861, for the purpose, as expressed in the applications, of arming volunteer companies. This gratuity is now sought to be diverted into a personal accommodation of certain officers of the militia. Army officers are required to pay for their horse equipments.

4th. I believe that issues of articles that can be so readily converted to private use will injuriously affect the interests that the law of 1808 was designed to benefit.

Respectfully submitted.

H. K. CRAIG,
- *Colonel of Ordnance.*

Hon. J. B. FLOYD,
Secretary of War.

[Indorsement.]

After reconsideration, as invited, the order will not be revoked.

J. B. FLOYD,
Secretary of War.

WAR DEPARTMENT,
October 8, 1860.

ORDNANCE OFFICE,
Washington, September 18, 1860.

SIR: I have the honor to acknowledge the reference to this office, for a report thereon, of a letter from the mayor of Augusta, Ga., communicating a resolution, passed by the councils of that city, requesting that a sufficient force be stationed at the arsenal near that city, for the protection of the arms, &c., stored therein. On this subject I have to report that a similar application was made in the summer of 1843, at which time this office reported that the quantity of arms at that arsenal had been recently much diminished by removal, and that it was thought the force of ordnance men and hired guard at the post was ample to protect what remained; but that all cause for fear on the subject might be dispelled by the removal of the remaining stores as soon as Charleston Arsenal (then under construction) was in a condition to receive stores.

The War Department, however, deemed it advisable to station a company of light artillery for the protection of the post, and one was sent there by Special Order No. 21 of 1843. This measure rendered it necessary to build extensive stables, at much cost, which stables have recently, by your orders, been directed to be taken down, as a measure of precaution against fire.

The joint occupation of the post as an arsenal and an artillery station soon became the cause of continual strife, from the clashing of divided authority, which was only terminated by the Secretary of War directing, on the 11th of March, 1845, that the bulk of the arms and other ordnance stores be removed to Charleston Arsenal; that when the removal was effected, the ordnance officer be stationed at some other post, and that a military storekeeper be then placed in charge, with a few ordnance men to keep the place in a proper state of police.

The artillery company remained at the arsenal until the troubles on our southern frontier called it into the field. Since that time the arsenal, which, until very recently, contained only a few hundred Hall's carbines and old pistols, with a small quantity of ammunition and various articles of ordnance stores, has been in the sole charge of this department.

The present application of the city authorities has been induced, it is supposed, from the recent storage at the arsenal of the 22,000 muskets and rifles sent there in pursuance of your directions of 29th December, last.

If these arms are deemed a source of anxiety instead of a measure of safety, I would recommend their removal to a place of greater security. And if this be inadmissible, then I would recommend to increase the number of enlisted ordnance men at the arsenal to such an extent as may be deemed sufficient. This can be done by reducing the number of enlisted men at each of the large arsenals; or by authorizing an increase of the number of men of the Ordnance Department. For this last measure you have ample authority by the 11th section of the act approved 18th June, 1846. Should this last course be pursued it will also be necessary to assign an ordnance officer to the command of the post.

The letter from the mayor of Augusta is respectfully returned herewith.

Very respectfully, &c.,

Hon. JOHN B. FLOYD,
Secretary of War.

H. K. CRAIG,
Colonel of Ordnance.

ORDNANCE OFFICE,
Washington, October 30, 1860.

SIR: I have the honor to submit the following report of the principal operations of the Ordnance Department during the last fiscal year, with such remarks and suggestions as the affairs of the department appear to call for, and which are stated under the different heads:

FISCAL AFFAIRS.

Amount, as per last year's report, undrawn from the Treasury on the 1st of July, 1859	\$748,731 52
In the hands of disbursing officers, same date	67,308 45
Amount of appropriations for the fiscal year 1860-61, including the fixed annual appropriation for arming and equipping the militia	1,202,645 00
Received during the year, on account of damages to arms in the hands of troops, from sales of condemned stores, and all other sources, not before mentioned	134,772 64
	2,153,457 61
Amount of expenditures during the year	\$1,508,045 09
In the government depositories to the credit of disbursing officers, June 30, 1860.	114,954 24
Remaining in the Treasury, same date	530,458 28
Total	2,153,457 61

The accounts of all the disbursing officers of the department have been regularly rendered to this office, where they have been carefully examined, and transmitted to the proper accounting officers of the Treasury Department for settlement. The estimates for the next fiscal year have been carefully prepared, and nothing has been embraced but what is considered to be of primary importance to the military service. Explanations in detail will be found annexed to the various items as they occur in the estimates.

ARMAMENT OF FORTIFICATIONS.

The means available under this appropriation have been applied to repairing and keeping in order the armament at the forts; to supplying additional armament where required; to paying for cannon, shot, and shells, and materials for gun-carriages, implements, and equipments, and to the manufacture of the same at the arsenals. The principal articles procured by fabrication at the arsenals, and by purchase, are as follows, viz: 36 42-pounder guns; 4 24-pounder guns; 1 10 and 1 8-inch columbiads; 2 42 and 6 24-pounder casemate carriages; 121 24-pounder howitzer casemate carriages, flank defense; 11 8-inch columbiad casemate carriages; 7 8-inch sea-coast howitzer barbette carriages; 1 42-pounder barbette carriage; 1 10 and 1 8-inch columbiad barbette carriages; 8 24 and 12 18-pounder siege carriages; 2 10-inch sea-coast mortar beds; 20 10 and 20 8-inch siege mortar beds; 42 24-pounder barbette upper carriages; 36 32-pounder casemate upper carriages; 6 24-pounder howitzer upper carriages; 18 8-inch sea-coast howitzer barbette chassis; 8 mortar wagons; 30,893 8-inch columbiad shells; 170 shells of various calibers; 8,132 42-pounder cannon balls; 695,003 pounds wrought-iron for gun-carriages; 129,000 pounds of gunpowder.

In consequence of proposed changes in the mode of casting guns, very few have been made during the last fiscal year for the armament of

fortifications. Some changes in the form of our sea-coast guns are suggested, and may be adopted before it becomes advisable to urge the fabrication with all the means at the disposal of the department.

A large quantity of iron for gun-carriages has been procured under your orders, which has been distributed amongst the arsenals of construction in such a manner as will, in my opinion, secure the construction of the carriages in the best and most economical manner. Since my last report carriages of the proposed model have been severely tried, with continued successful results as to the suitableness of the material. These trials have suggested a few changes in some of the details of construction with a view to economy and simplicity.

The experiments for the purpose of testing the strength of gun and other metal, which were in progress at the date of my last report, have been so far completed that a report of the same, made to this office, has been revised, and will be published at an early day; the information being considered of sufficient practical and scientific character to warrant the measure.

The advantages to be derived by government from the establishment of a national foundry have been so repeatedly urged by this department that it is deemed only necessary to present the subject to your attention, without repeating the arguments which have been heretofore used.

ORDNANCE, ORDNANCE STORES, AND SUPPLIES.

The expenditures under this appropriation have been devoted to the purchase and fabrication at the arsenals of the various articles properly chargeable to that appropriation. The principal items thus obtained are as follows: 1 12-pounder bronze gun; 3 mountain howitzers; 18 12-pounder carriages; 14 prairie carriages; 38 caissons; 750 shells of various calibers; 3,547 spherical-case shot, various calibers; 278 Sharp's carbines; 1 Colt's rifle; 1 Colt's carbine; 3 Colt's pistols; 1,132 infantry cartridge-box belts; 2,726 waist belts; 1,300 gun slings; 2,936 cap pouches; 1,069 holsters for Colt's pistols; 1,126 sets horse equipments; 9,179 rounds of ammunition for field service; 4,003,923 cartridges for small-arms; 7,477,500 percussion caps for small-arms; 3,719,000 Maynard primers; 851,000 friction primers.

The arms, ammunition, military equipments, and other ordnance supplies furnished to the United States forces during the year ended June 30, 1860, are shown in the statement hereto annexed, marked C.

Horse equipments, of the pattern adopted at the time of my last report, have been procured by purchase, and by fabrication at the arsenals, to as great an extent as the means applicable to that purpose would permit, and have been issued to the army. The few reports received from officers who have these equipments in use are favorable in so far that they are superior, both in model and manufacture, to any heretofore supplied.

Experiments have shown the propriety of some changes in the manufacture of gunpowder for heavy ordnance, with the view of obtaining slower combustion without sacrificing velocity of the projectile, for the purpose of preventing sudden strain on the metal of the gun. These experiments will be continued.

The subject of rifle cannon still continues to be the subject of experiment; and, although the results prove the great superiority of that kind of ordnance over that of the smooth-bored guns in point of range and accuracy of fire, no peculiar mode of rifling or form of projectile has yet been decided on for adoption. Experiments continue to be made.

ARMING AND EQUIPPING THE MILITIA.

Statement A, hereto annexed, shows the apportionment of arms, as directed by law, to the militia of the several States and Territories. The principal articles obtained on this account during the past fiscal year, by fabrication at the arsenals and by purchase, are as follows: 5 6-pounder carriages; 10 mountain howitzer carriages; 2,223 Sharp's carbines; 301 Colt's rifles; 2 Colt's cavalry carbines; 108 Colt's pistols; 3,600 cavalry sabers; 1,000 musicians' swords; 1,000 artillery swords; 7,559 infantry cartridge boxes; 8,548 infantry cartridge-box belts; 7,320 infantry waist belts; 200 belts for sergeants and musicians; 3,114 gun slings; 3,328 cap pouches; 6,781 bayonet scabbards; 110 holsters for Colt's pistols; 100 artillery sword belts.

I respectfully call your attention to the remarks made in my last report in relation to the insufficiency of the means provided for supplying arms to the militia of the United States, and to urge the expediency of asking for legislation to increase the standing appropriation for this purpose. While on this subject, I would further recommend legislative enactment, pointing out the particular arms, &c., that are to be issued to the militia; and also that authority be given, by law, for the sale to the States and Territories, from the arsenals, at cost price, of ammunition for the arms furnished, and also of limbs and spare parts of arms for repairing them. Such a law, without being in any way objectionable to the government, would greatly promote the militia service, as some of these articles are absolutely essential to the proper use and preservation of the arm furnished by the government, and can be procured, of good quality, only from our workshops and laboratories.

The quantity and kind of arms and equipments furnished to the militia during the past year are shown in statement B, hereto annexed.

NATIONAL ARMORIES.

The manufacture at these establishments during the past fiscal year include 14,399 rifle muskets, 2,701 rifles, and 200 cadets' muskets, with 33,114 implements for small-arms, consisting of bullet-molds, screw-drivers, wipers, &c., and 8,648 component parts of arms for issue to posts and troops, to be used in repairing. In addition to these articles of manufacture, much work has been done in the erection, repairs, and improvement of machinery and tools, buildings, raceways, and public grounds. These operations are stated in detail in the annexed reports from the superintendents, which are referred to for more minute particulars.

The number of arms manufactured at the national armories during the last year was not as great as the available funds would have justified. This diminution is in a measure attributable to the diversion of armory operations from the manufacture of arms of the established model to the alteration of arms according to plans of patentees, and to getting up models of arms for inventors.

Our store of muskets of all kinds, at this time, does not exceed 530,000, dispersed among the arsenals of the country; nowhere more than 130,000 being together. As this supply of arms is applicable to the equipment of the army, the navy, the marine corps, and the militia of the country, it is certainly too small, and every effort should be made to increase the number of our new-model guns, whilst no further reduction, by sale of the old-model serviceable arms, should be allowed until our arsenals are better supplied. Our store of muskets has, in former years, reached

nearly 700,000, and was not then considered too great for the country, as was evidenced by the liberal appropriations made for the further increase and for the construction of more perfect and productive machinery for the fabrication of small-arms.

ARSENALS AND DEPOTS.

The means applicable to the extension and maintenance of arsenals and ordnance depots have been applied to the objects specified in the estimates on which appropriations were made. I refer to the reports of commanding officers of arsenals, hereto annexed, for the particular objects to which the means have been applied, at each. Preparations made for the erection of small arsenals in the Territories of New Mexico and Washington, under appropriations for that purpose, remain suspended—in the latter, for want of a valid title to the site upon which it was proposed to build; and in the former by reason of the suggested propriety of locating such an establishment in the vicinity of other army depots in that Territory for which the site has not yet been selected. The temporary buildings at the Fort Union depot have become much dilapidated, and require frequent expensive repairs. An early selection of a site for the general depot is, therefore, very desirable; and, from the best information I have been able to obtain, I am inclined to the belief that one in the neighborhood of Fort Union offers most advantages.

At various times, to meet the requirements of the military service, small arsenals and depots were established, in different States, on land either purchased or reserved from the public domain for the purpose. Many of these have, by change of circumstances, become not only useless as arsenals or depots, but are a source of considerable expense to the department in the preservation of the buildings, &c. Two of these are particularly useless and embarrassing to the department on account of the care necessary for their preservation. They are the arsenal and site at Rome, New York, and the depot and site at Liberty, Missouri. The former was abandoned as an arsenal several years since, and was put up at sale without success; the latter has been rendered entirely useless as a depot by the establishment of the arsenal at Leavenworth, to which place the stores have been principally removed. As the 6th section of the act of June 12, 1858, prohibits the sale of military sites, &c., except under a special law, I recommend that authority be obtained for the sale of these two arsenals, with the land upon which they are situated.

With a view of promoting the efficiency of the light artillery, on the 24th of October, 1858, I recommended that two smiths or farriers, two carriage-makers, and one saddler, five in all, be added to each company, with the monthly pay of \$25, and, until a law could be obtained to that effect, that four mechanics of the Ordnance Department be attached to each of the light companies. This last recommendation was approved by you, and has been carried into effect, as far as practicable, to the advantage of the service.

Very respectfully, your obedient servant,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JOHN B. FLOYD,
Secretary of War.

ORDNANCE, ARMS, AND EQUIPMENTS.—The accompanying report from the Colonel of Ordnance is referred to for information in detail respecting military supplies of this kind, which have been procured by fabrication and purchase, and which have been furnished to the army and to the militia of the States. The experiments for the improvement of these supplies, which were stated to be in progress in my last report, have been continued with valuable results—have greatly improved, if they have not perfected, the fabrication of sea-coast and garrison gun carriages of iron, the models and mode of casting of heavy cannon, and the quality of metal for the same. The same is true as to the manufacture of cannon powder, particularly for guns of large calibers, whereby the endurance of such guns has been much increased, without any diminution of their effectiveness. But it is particularly in regard to rifle cannon and projectiles that such experiments have been satisfactory and valuable.

The report of a board of ordnance and artillery officers, who have been occupied during the past summer and fall in experimental firing with rifle cannon, leaves no doubt that the accuracy and effectiveness of our artillery may be vastly increased at comparatively small expense without discarding from use the good and serviceable cannon of our present models; requiring only that they be rifle-grooved to adapt them to use as rifle cannon with James' elongated expanding projectiles. This easy and cheap mode will convert the smooth-bored into rifle cannon, throwing nearly double the weight of metal without increased strain to lessen the durability of the guns, or endanger the safety of those serving them. Arrangements have been ordered to be made for rifling a portion of our cannon on this plan, which is the best, in all respects, that has so far been brought to notice. The procurement of a proper supply of the projectiles is essential, but it cannot be effected without authority of law or a special appropriation, in consequence of the prohibition of the "purchase of any arms or military supplies whatever which are of a patented invention." I shall take occasion to present estimates, as soon as they can be prepared, for the procurement of these projectiles, and shall urge appropriation therefor as being highly desirable, if not necessary, for placing our artillery in the highest state of efficiency of which it seems now susceptible. These experiments have, of course, been attended with some expense, but so small as to be insignificant in comparison with their benefits to the military service, or with the amounts of expenditures by foreign governments for the same objects, without, it is confidently believed, the attainment of as valuable results. As there was no special appropriation for the experiments, the expenses necessarily attending their prosecution have been defrayed from general appropriations for the service of the Ordnance Department, principally from which was estimated to cover incidental expenses of the ordnance service. An appropriation of about fifty thousand dollars for experiments for the improvement of arms and military supplies is highly desirable, and there is no doubt that such application of that amount, or as much of it as may be needed for the purpose, would be a profitable expenditure. The law, before referred to, which prohibits the purchase of any arms or military supplies whatever which are of a patented invention, is too general and comprehensive in its terms, embarrasses the operations of the War Department, and is, in some respects, injurious to the military service, both as regards the army and the militia. There are certain arms and other military supplies of patented inventions, the merits of which have been so well established as to have caused their

introduction, regularly, into the service. These are frequently embraced in requisitions for supplies coming from the army and from the States; but the few left on hand of those which were purchased before the passage of the prohibitory law constitute the only source from which those requisitions can be met, and that source is now either entirely or very nearly exhausted. It is, therefore, recommended that the law be so amended as to except from the prohibition such arms or other military supplies as constitute a regular part of the armament or equipment of troops, and also the improved patented mode of casting and cooling for iron cannon. It should be repealed as to all articles used in the Quartermaster's Department.

I again call attention to the existing law for arming and equipping the whole body of the militia of the United States, which was passed in 1808. The provision then made for the purpose remains the same now. It is entirely insufficient for its effectual accomplishment, as is shown by frequent requisitions and urgent applications from States and Territories for advances of arms and equipments beyond their regular quotas.

The want of a national armory for the fabrication of cannon has long been felt, and the expediency, indeed necessity, of proper legislation to secure its establishment has been repeatedly urged upon the national legislature. The improvements of late suggested, and verified so far as the limited means at my disposal would permit, in the models and mode of casting cannon, and in the adaptation to them of the rifle principle, can only be fully developed and successfully carried out by having the proper means under government control for preparing and treating the materials and for perfecting their fabrication. The adoption of these improvements so as to apply them most successfully, which is essential to the highest efficiency of our artillery arm, furnishes now an additional argument to the many heretofore advanced in favor of having them fabricated at such an armory as is spoken of.

A large quantity of condemned stores, amongst which were many old muskets have been sold during the year to make room in the arsenals for modern arms.

BREECH-LOADING ARMS.—Very frequent and numerous experiments have been made under my direction of breech-loading arms, and inventions for this purpose are wonderfully numerous. Many have been rejected, but some plans for breech loading have been approved, after very numerous experiments, and are now conceded by all who are familiar with them, and capable of judging, to be by far the most efficient arms ever put into the hands of intelligent men. Immediate steps ought to be taken to arm all our light troops with the most approved of these arms. I hold it to be an inhuman economy which sends a soldier into the field, where his life is constantly in danger, without furnishing him with the best (not the most expensive) arms that are or can be made. It is no answer to say that our troops cannot be taught to use with skill this character of arm, as well as another. It is the practice and drill that make the soldier expert in the use of his arm, and whilst he may attain to great skill with a good weapon, he certainly never can do so with an indifferent one.

I think it may be fairly asserted, now, that the highest efficiency of a body of men with fire-arms can only be secured by putting in their hands the best breech-loading arm. The long habit of using muzzle loading arms will resist what seems to be so great an innovation, and ignorance may condemn; but as certainly as the percussion cap has superseded the flint and steel, so surely will the breech-loading gun drive out of use

those that load at the muzzle. For cavalry, the revolver and breech loader will supersede the saber.

ACCOUNTING OFFICER.—I call attention particularly to the importance of having the accounting officer for the War Department directly under the control of the department itself. It is quite inconvenient and troublesome to have the accounting officer, whose business is so intimately and constantly connected with the War Department, detached from it entirely, and subject to the orders and direction of another department almost exclusively. The War Department should settle and adjust its own accounts fully and entirely; and it is enough that the result of such settlement should be sent to the Treasury.

[Miscellaneous Letters, vol. 52, p. 333.]

ORDNANCE OFFICE,
Washington, December 18, 1860.

SIR: The inspection report, by Capt. R. A. Wainwright of the ordnance dépôt at Fort Union, with the indorsement thereon by Colonel Fauntleroy, commanding the Military Department of New Mexico, which was referred to this office for the views of the Ordnance Department on the subject, is respectfully returned with the following remarks:

The inspection, as ordered by Colonel Fauntleroy, appears to have been carefully made, and to have resulted in convincing the inspecting officer that the affairs of the ordnance dépôt were effectually managed and with a due regard to economy. This report is forwarded without direct disapproval by the Department Commander, but elicits the remark indorsed thereon by him that the dépôt, as now managed, costs the government at least three times as much as necessary in his judgment; with the opinion that at least twenty thousand dollars a year may be saved, by putting the dépôt upon the footing of a strict appendage to the post in all things pertaining to its economy and police, or in other words by giving him control of expenditure of funds appropriated by law for the service of the Ordnance Department, and which it is made the duty of the Ordnance Department by law to expend under the direction of the Secretary of War.

Here is a remarkable discrepancy between the conclusions reached on careful examination just made by an ordnance officer whose specialty is, and has been for 22 years past, attention to ordnance matters exclusively, and by another officer, whose duties and whose experience have been always directed to different military specialties, and who appears to have required an inspection in order to obtain information in regard to this particular ordnance station.

The ordnance dépôt, at Fort Union was established some eight years ago, at the instance of Colonel Sumner, then commanding the Military Department of New Mexico, and has been continued under all the department commanders since, in charge of the same officer of the Ordnance Department, without any complaint of inefficiency or mismanagement, but on the contrary with not unfrequent expressions of commendation. It is used for the storage of ordnance supplies, repairs, &c., and preparation of ammunition, for the United States troops and also for the militia, under the law of April 23, 1808, which can be most conveniently and economically supplied from it.

The propriety of a separate ordnance establishment for such purposes in New Mexico, was such as to have induced, a short time since, an ap-

propriation by Congress for the establishment of a permanent arsenal to replace the temporary ordnance dépôt in that territory. The execution of that law is now in progress, under direction of the War Department, so far as regards the approval of the plan for the arsenal and the preparation of materials for the buildings; and this work for the past year has caused an increase beyond the ordinary dépôt expenditures, and the employment of additional mechanical and laboring force, which are paid for out of the appropriation for the service of the Ordnance Department under the special head of arsenal in New Mexico. The total expenditures, taken from the official records in this office, of accounts rendered to the Treasury Department, for eight years ending with the third quarter of 1860, and including the expenditures for the new arsenal before referred to, amount to \$37,566.33, or to an average of \$4,695.79 per annum. How twenty thousand dollars a year are to be saved, is a question not within the compass of my arithmetic.

This department has no right to call for the expenditure of quartermaster's funds to aid in the execution of objects for which there are distinct appropriations. That and the Subsistence Department already furnish all the supplies which their legitimate means allow and their proper duties call for.

One of the special objects of the inspections recently assigned to the Colonel of Ordnance, is the examination of this question of an arsenal in New Mexico, with a view to the selection and acquisition of a proper site therefor. I have no doubt that the affairs of the ordnance depot, including the operations now going on there, which pertain to the new arsenal, are efficiently and economically managed. The course recommended by Colonel Fauntleroy, in my opinion is contrary to law and regulations and will not effect the object he proposes, nor any other for the public interests, but the reverse. At any rate in view of his differing in his opinion on this subject from all his predecessors in command of the military department, and also in view of the approaching inspection before mentioned by the Colonel of Ordnance, I think it decidedly unadvisable to adopt his recommendations, or any part of them, until farther developments shall have confirmed (or refuted) their soundness.

Respectfully, &c.

WM. MAYNADIER,
Captain of Ordnance.

Lieut. Col. L. THOMAS,
Assistant Adjutant General, Headquarters of the Army.

APPROPRIATIONS FOR ORDNANCE PURPOSES, 1845 TO 1860.

Objects for which appropriations were made.	Statutes at Large.	Date of appropriation acts.	Amounts.
For the fiscal year, June 30, 1846:			
Purchase of ordnance, ordnance stores, and supplies	5 Stat., 747	Mar. 3, 1845	\$80,000 00
Current expenses of ordnance service	5 Stat., 747	Mar. 3, 1845	100,000 00
Manufacture of arms at the national armories, of which the sum of \$100,000 may be used for repairs, provided it can be used for that purpose without injury to the public service			
Arsenals	5 Stat., 747	Mar. 3, 1845	360,000 00
Purchase of saltpeter and brimstone	5 Stat., 747	Mar. 3, 1845	100,000 00
Repairs and improvements and new machinery at Springfield Armory*	5 Stat., 747	Mar. 3, 1845	40,000 00
Repairs and improvements and new machinery at Harper's Ferry Armory	5 Stat., 747	Mar. 3, 1845	29,500 00
Armament of fortifications	5 Stat., 747	Mar. 3, 1845	18,000 00
Arming and equipping the militia	5 Stat., 747	Mar. 3, 1845	100,000 00
For the fiscal year, June 30, 1847:	2 Stat., 490	Apr. 23, 1808	200,000 00
Armament of fortifications	9 Stat., 12	May 15, 1846	300,000 00
Ordnance, arms, &c.	9 Stat., 39	July 20, 1846	344,000 00
Purchase of ordnance, ordnance stores, and supplies	9 Stat., 69	Aug. 8, 1846	100,000 00
Current expenses of the ordnance service	9 Stat., 69	Aug. 8, 1846	100,000 00
Manufacture of arms at the national armories	9 Stat., 69	Aug. 8, 1846	300,000 00
Repairs and improvements and new machinery at Springfield Armory†	9 Stat., 69	Aug. 8, 1846	125,000 00
Repairs and improvements and new machinery at Harper's Ferry Armory ‡	9 Stat., 69	Aug. 8, 1846	128,361 00
Arsenals, of which \$12,500 is authorized to be applied to the purchase of a site and building a magazine for Washington Arsenal	9 Stat., 69	Aug. 8, 1846	168,593 00
Purchase of saltpeter and brimstone	9 Stat., 69	Aug. 8, 1846	40, 00 00
Purchase of gunpowder	9 Stat., 69	Aug. 8, 1846	100,000 00
Expenses of preparing drawings of a uniform system of artillery	9 Stat., 69	Aug. 8, 1846	1,000 00
Expenses of the mineral land service	9 Stat., 69	Aug. 8, 1846	30,000 00
Arming and equipping the militia	2 Stat., 490	Apr. 23, 1808	200,000 00
For the fiscal year, June 30, 1848:			
Purchase of ordnance, ordnance stores, and supplies	9 Stat., 150	Mar. 2, 1847	367,629 00
Current expenses of the ordnance service	9 Stat., 151	Mar. 2, 1847	100,000 00
Armament of fortifications	9 Stat., 151	Mar. 2, 1847	100,000 00
Manufacture of arms at the national armories	9 Stat., 151	Mar. 2, 1847	360,000 09
Repairs and improvements and new machinery at Springfield Armory	9 Stat., 151	Mar. 2, 1847	18,500 00
Repairs and improvements and new machinery at Harper's Ferry Armory	9 Stat., 151	Mar. 2, 1847	17,770 00
Arsenals	9 Stat., 151	Mar. 2, 1847	51,480 00
Expenses of preparing drawings of a uniform system of artillery	9 Stat., 151	Mar. 2, 1847	5,000 00
Ordnance, ordnance stores, and supplies	9 Stat., 151	Mar. 2, 1847	452,557 00
Purchase of ordnance, ordnance stores, and supplies	9 Stat., 216	Mar. 27, 1848	300,000 00
Arming and equipping the militia	2 Stat., 490	Apr. 23, 1808	200,000 00
For fiscal year, June 30, 1849:			
Armament of fortifications	9 Stat., 305	Aug. 14, 1848	100,000 00
Purchase of ordnance, ordnance stores, and supplies	9 Stat., 305	Aug. 14, 1848	150,000 00
Current expenses of the ordnance service	9 Stat., 305	Aug. 14, 1848	100,000 00
Manufacture of arms at the national armories	9 Stat., 305	Aug. 14, 1848	360,000 00
Repairs, improvements, and new machinery at Harper's Ferry Armory	9 Stat., 306	Aug. 14, 1848	53,091 00
Repairs, improvements, and new machinery at Springfield Armory	9 Stat., 306	Aug. 14, 1848	81,000 00
Arsenals	9 Stat., 306	Aug. 14, 1848	130,338 00
Purchase of land at Springfield, Mass., adjacent to new arsenal and public buildings	9 Stat., 306	Aug. 14, 1848	10,000 00
Purchase of land at Springfield, Mass., to be flowed by raising dam at upper water shop	9 Stat., 306	Aug. 14, 1848	5,000 00
Expenses of preparing drawings of a uniform system of artillery	9 Stat., 306	Aug. 14, 1848	3,000 00
Swords for Generals Butler, Henderson, Twiggs, Worth, Quitman, and Hamer, under joint resolution of March 2, 1847 (9 Stat., 206)	9 Stat., 344	Jan. 26, 1849	9,000 00
Arming and equipping the militia	2 Stat., 490	Apr. 23, 1808	200,000 00

* By act of August 8, 1846 (9 Stat., 69), \$20,000 of this amount is authorized to be applied to the purchase of land.

† By joint resolution March 3, 1847 (9 Stat., 207), a portion of this amount authorized to be applied to the purchase of land.

‡ By joint resolution March 3, 1847 (9 Stat., 207), a portion of this amount authorized to be applied to the purchase of land.

Appropriations for ordnance purposes, 1845 to 1860—Continued

Objects for which appropriations were made.	Statutes at Large.	Date of appropriation acts.	Amounts.
For fiscal year, June 30, 1850:			
Armament of fortifications	9 Stat., 372	Mar. 3, 1849	\$100,000 00
Purchase of ordnance, ordnance stores, and supplies	9 Stat., 372	Mar. 3, 1849	100,000 00
Current expenses of the ordnance service	9 Stat., 372	Mar. 3, 1849	100,000 00
Manufacture of arms at the national armories	9 Stat., 372	Mar. 3, 1849	360,000 00
Purchase of Colt's revolving pistols if the Secretary of War should deem it advisable and proper	9 Stat., 372	Mar. 3, 1849	50,000 00
Repairs and improvements and new machinery at Harper's Ferry Armory	9 Stat., 372	Mar. 3, 1849	62,620 00
Repairs and improvements and new machinery at Springfield Armory	9 Stat., 372	Mar. 3, 1849	82,500 00
Arsenals	9 Stat., 372	Mar. 3, 1849	74,261 00
Purchase of a lot of ground at Harper's Ferry contiguous to the public buildings	9 Stat., 372	Mar. 3, 1849	200 00
Purchase of land at Springfield Armory, to be flowed by raising the dam at the upper shop, and of a lot on the north-west corner of the armory grounds	9 Stat., 372	Mar. 3, 1849	9,000 00
Purchase of a site for magazine at Saint Louis Arsenal	9 Stat., 372	Mar. 3, 1849	5,000 00
Purchase of land adjoining Frankford Arsenal, Pennsylvania	9 Stat., 372	Mar. 3, 1849	20,000 00
Erecting suitable buildings and machinery for the manufacture of percussion caps at Frankford Arsenal	9 Stat., 372	Mar. 3, 1849	15,000 00
Expense of compiling, arranging, publishing, and supervising the publication of a new edition of the Ordnance Manual of 1,500 copies*	9 Stat., 372	Mar. 3, 1849	6,000 00
Arming and equipping the militia	2 Stat., 490	Apr. 23, 1808	200,000 00
For fiscal year, June 30, 1851:			
Armament of fortifications	9 Stat., 506	Sept. 28, 1850	100,000 00
Purchase of ordnance, ordnance stores, and supplies	9 Stat., 506	Sept. 28, 1850	100,000 00
Current expenses of the ordnance service	9 Stat., 506	Sept. 28, 1850	100,000 00
Manufacture of arms at the national armories	9 Stat., 506	Sept. 28, 1850	360,000 00
Repairs and improvements and new machinery at Harper's Ferry Armory	9 Stat., 507	Sept. 28, 1850	50,560 00
Repairs and improvements and new machinery at Springfield Armory	9 Stat., 507	Sept. 28, 1850	56,600 00
Arsenals, \$16,000 of which to be applied to the completion of North Carolina Arsenal	9 Stat., 507	Sept. 28, 1850	117,586 00
Purchase of a lot of ground at Springfield, Mass., adjoining the armory grounds on the hill and near the new arsenal	9 Stat., 507	Sept. 28, 1850	8,500 00
Arming and equipping the militia	2 Stat., 490	Apr. 23, 1808	200,000 00
For fiscal year June 30, 1852:			
Purchase of ordnance, ordnance stores, and supplies	9 Stat., 620	Mar. 3, 1851	100,000 00
Current expenses of ordnance service	9 Stat., 620	Mar. 3, 1851	100,000 00
Manufacture of arms at the national armories	9 Stat., 620	Mar. 3, 1851	360,000 00
Repairs and improvements and new machinery at Harper's Ferry Armory	9 Stat., 620	Mar. 3, 1851	23,100 00
Repairs and improvements and new machinery at Springfield Armory	9 Stat., 620	Mar. 3, 1851	47,900 00
Expenses of suits at law against superintendent of Springfield Armory involving United States title to lands at Springfield Armory	9 Stat., 620	Mar. 3, 1851	5,000 00
Arsenals	9 Stat., 620	Mar. 3, 1851	117,586 00
Erection of two magazines for powder at Jefferson Barracks, including the \$5,000 heretofore appropriated	9 Stat., 620	Mar. 3, 1851	20,000 00
Arming and equipping the militia	2 Stat., 490	Apr. 23, 1808	200,000 00
For fiscal year June 30, 1853:			
Armament of fortifications	10 Stat., 107	Aug. 31, 1852	50,000 00
Ordnance stores and supplies, as follows: For procurement of side-arms and accouterments for artillery, infantry, cavalry, and rifle-men; materials for and preparation of siege and field ammunition; wages of mechanics engaged in making carriages, implements, equipments, harness, &c., and for purchase of miscellaneous supplies of ordnance stores for issue to the army	10 Stat., 107	Aug. 31, 1852	65,000 00
Current expenses of the ordnance service	10 Stat., 107	Aug. 31, 1852	100,000 00
Manufacture of arms at the national armories	10 Stat., 107	Aug. 31, 1852	250,000 00
Repairs and improvements and new machinery at Harper's Ferry Armory	10 Stat., 107	Aug. 31, 1852	28,950 00
Repairs and improvements and new machinery at Springfield Armory	10 Stat., 107	Aug. 31, 1852	32,500 00
Arsenals	10 Stat., 107	Aug. 31, 1852	66,985 00
Arming and equipping the militia	2 Stat., 490	Apr. 23, 1808	200,000 00
For fiscal year June 30, 1854:			
Cannon, gun-carriages, and projectiles for sea-coast defense	10 Stat., 217	Mar. 3, 1853	200,000 00
Ordnance, ordnance stores, and supplies	10 Stat., 217	Mar. 3, 1853	100,000 00
Current expenses of the ordnance service	10 Stat., 217	Mar. 3, 1853	100,000 00
Manufacture of arms at the national armories	10 Stat., 217	Mar. 3, 1853	250,000 00
Damages at Harper's Ferry caused by flood of April 19, and 20, 1852	10 Stat., 217	Mar. 3, 1853	20,000 00

* By sixth section, act September 28, 1850 (9 Stat., 508), an unexpended balance of this sum is authorized to be paid to "the officer of the United States Army employed in compiling, arranging, and supervising the publication" of the Ordnance Manual.

Appropriations for ordnance purposes, 1845 to 1860—Continued.

Objects for which appropriations were made.	Statutes at Large.	Date of appropriation acts.	Amounts.
Repairs and improvements and new machinery at Harper's Ferry Armory	10 Stat., 217	Mar. 3, 1853	\$43,500 00
Repairs and improvements and new machinery at Springfield Armory	10 Stat., 217	Mar. 3, 1853	46,004 00
Arsenals	10 Stat., 217	Mar. 3, 1853	41,071 00
Arming and equipping the militia	2 Stat., 490	Apr. 23, 1808	200,000 00
For fiscal year, June 30, 1855:			
Armament of fortifications	10 Stat., 578	Aug. 5, 1854	125,000 00
Ordnance, ordnance stores, and supplies	10 Stat., 578	Aug. 5, 1854	75,000 00
Current expenses of the ordnance service	10 Stat., 578	Aug. 5, 1854	100,000 00
Manufacture of arms at the national armories	10 Stat., 578	Aug. 5, 1854	250,000 00
Repairs and improvements and new machinery at Harper's Ferry Armory	10 Stat., 578	Aug. 5, 1854	35,100 00
Arsenals	10 Stat., 578	Aug. 5, 1854	33,310 00
Completion of magazine at Jefferson Barracks	10 Stat., 578	Aug. 5, 1854	25,000 00
Purchase of a site and construction of an arsenal at Benicia, Cal	10 Stat., 579	Aug. 5, 1854	33,985 00
Sword for Gen. John E. Wool, joint resolution January 24, 1854 (10 Stat., 591)	10 Stat., 579	Aug. 5, 1854	1,500 00
Purchase of the best breech-loading rifles, in the opinion of the Secretary of War, for the use of the United States Army, provided that the Secretary of War, after a fair practical test thereof, shall deem the purchase advisable and proper	10 Stat., 579	Aug. 5, 1854	90,000 00
Armament of fortifications in the harbor of San Francisco, Cal	10 Stat., 348	Aug. 3, 1854	130,000 00
Arming and equipping the militia	2 Stat., 490	Apr. 23, 1808	200,000 00
For fiscal year, June 30, 1856:			
Armament of fortifications	10 Stat., 637	Mar. 3, 1855	125,000 00
Ordnance, ordnance stores, and supplies	10 Stat., 637	Mar. 3, 1855	100,000 00
Current expenses of the ordnance service	10 Stat., 637	Mar. 3, 1855	100,000 00
Contingencies of arsenals	10 Stat., 638	Mar. 3, 1855	50,000 00
Manufacture of arms at the national armories	10 Stat., 637	Mar. 3, 1855	250,000 00
Purchase of gunpowder for the Pacific coast	11 Stat., 3		130,000 00
Repairs and improvements and new machinery at Harper's Ferry Armory	10 Stat., 637	Mar. 3, 1855	32,673 00
Repairs and improvements and new machinery at Springfield Armory	10 Stat., 637	Mar. 3, 1855	54,000 00
New machinery at Harper's Ferry Armory	10 Stat., 637	Mar. 3, 1855	20,000 00
Purchase of lots and improvements at Harper's Ferry Armory	11 Stat., 143	Apr. 23, 1856	33,725 27
Repairs, preservation, and contingencies of arsenals, and for continuing the construction of the arsenal at Benicia, Cal	10 Stat., 638	Mar. 3, 1855	40,000 00
Building for the militia of the District of Columbia, and for military trophies of the revolutionary and other wars	10 Stat., 665	Mar. 3, 1855	30,000 00
Compensation of civil superintendents at armories	10 Stat., 638	Mar. 3, 1855	5,000 00
Raising four additional regiments (assigned)	10 Stat., 639	Mar. 3, 1855	14,665 28
Arming and equipping the militia	2 Stat., 490	Apr. 23, 1808	200,000 00
Testing Lieutenant Rodman's plan of casting cannon hollow	10 Stat., 680	Mar. 3, 1855	6,000 00
For fiscal year, June 30, 1857:			
Armament of fortifications	11 Stat., 149	Aug. 30, 1856	125,000 00
Ordnance, ordnance stores, and supplies, including horse equipments for the mounted regiments	11 Stat., 149	Aug. 30, 1856	203,000 00
Current expenses of the ordnance service	11 Stat., 149	Aug. 30, 1856	100,000 00
Manufacture of arms at the national armories	11 Stat., 149	Aug. 30, 1856	250,000 00
To enable Thomas H. Barlow, of Kentucky, to manufacture one of his newly invented rifle cannon, for the purpose of testing the feasibility of their use in the military or naval service of the country, to be paid to the said Barlow from time to time as he progresses with the manufacture of the same, provided said cannon shall not be of less caliber than a 12-pounder; and provided further that the said Barlow shall give good and sufficient security to the Secretary of War for the faithful expenditure of the money hereby appropriated in the construction of said cannon	11 Stat., 149	Aug. 30, 1856	3,000 00
Arsenals, including the purchase of sites for new arsenals of deposit in Texas and New Mexico, and for the erection of suitable magazines and other arsenal buildings in Texas, in California, in Washington or Oregon Territories, and in New Mexico	11 Stat., 149	Aug. 30, 1856	230,157 00
Repairs and improvements and new machinery at Harper's Ferry Armory	11 Stat., 150	Aug. 30, 1856	38,892 00
Repairs and new machinery at Springfield Armory, Mass.: Completion, including water-wheels and shafting, of the new water shops; grading grounds and construction of bridge at Springfield Armory	11 Stat., 150	Aug. 30, 1856	38,000 00
Compensation of civil superintendents at armories	10 Stat., 638	Mar. 3, 1855	5,000 00
Arming and equipping the militia	2 Stat., 490	Apr. 23, 1808	200,000 00

Appropriations for ordnance purposes, 1845 to 1860—Continued.

Objects for which appropriations were made.	Statutes at Large.	Date of appropriation acts.	Amounts.
For fiscal year, June 30, 1858:			
Armament of fortifications	11 Stat., 202	Mar. 3, 1857	\$300,000 00
Ordnance, ordnance stores and supplies, including horse equipments for the mounted regiments	11 Stat., 202	Mar. 3, 1857	250,000 00
Current expenses of the ordnance service	11 Stat., 202	Mar. 3, 1857	150,000 00
Arsenals, including \$50,000 for arsenal in California	11 Stat., 202	Mar. 3, 1857	137,250 00
Purchase of lands adjacent to Washington Arsenal	11 Stat., 202	Mar. 3, 1857	80,450 10
Repairs and new machinery at Springfield Armory	11 Stat., 203	Mar. 3, 1857	68,685 00
Erection and completion of the water-shops at Springfield Armory	11 Stat., 203	Mar. 3, 1857	70,985 00
Repairs and improvements and new machinery at Harper's Ferry Armory	11 Stat., 203	Mar. 3, 1857	34,970 00
Manufacture of arms at the national armories	11 Stat., 260	Feb. 4, 1858	360,000 00
Finishing and furnishing the armory for the militia of the District of Columbia	11 Stat., 203	Mar. 3, 1857	7,827 00
Machinery, tools, and fixtures for arsenal of construction of Fayetteville, N. C., including cost of putting machinery in place	11 Stat., 203	Mar. 3, 1857	50,350 00
Further tests of gun-metal for heavy cannon	11 Stat., 203	Mar. 3, 1857	25,000 00
Compensation of civil superintendents at armories	10 Stat., 638	Mar. 3, 1855	5,000 00
Arming and equipping the militia	2 Stat., 490	Apr. 23, 1808	200,000 00
For fiscal year, June 30, 1859:			
Armament of fortifications	11 Stat., 334	June 12, 1858	300,000 00
Ordnance, ordnance stores and supplies, including horse equipments for the mounted regiments	11 Stat., 334	June 12, 1858	250,000 00
Current expenses of the ordnance service, including experiments in the manufacture of cannon and cannon powder, and for tests of arms and ammunition, not otherwise provided for	11 Stat., 334	June 12, 1858	150,000 00
Purchase of gunpowder for the land service	11 Stat., 334	June 12, 1858	100,000 00
Manufacture of arms at the national armories	11 Stat., 335	June 12, 1858	400,000 00
Purchase of breech loading carbines of the best model, to be selected and approved by a board of ordnance officers	11 Stat., 335	June 12, 1858	25,000 00
Alteration of old arms so as to make them breech-loading arms, upon a model to be selected and approved by a board of ordnance officers; provided that any portion of said sum, not exceeding \$5,000, may be expended under the direction of the Secretary of War, and at his discretion, in applying to the old or new arms any recent improvement in the mode of priming	11 Stat., 335	June 12, 1858	25,000 00
Allegheny Arsenal	11 Stat., 335	June 12, 1858	35,100 00
Fort Monroe Arsenal	11 Stat., 335	June 12, 1858	24,900 00
Kennecub Arsenal, \$2,000 of which may be used in bringing gas upon the arsenal grounds, and with leave to extend gas-pipes through the grounds by the gas company	11 Stat., 335	June 12, 1858	11,600 00
Saint Louis Arsenal	11 Stat., 335	June 12, 1858	31,000 00
Washington Arsenal	11 Stat., 335	June 12, 1858	9,379 00
Additional timber and carriage storehouse at North Carolina Arsenal	11 Stat., 335	June 12, 1858	25,000 00
Watervliet Arsenal	11 Stat., 335	June 12, 1858	30,000 00
Repairs and preservation of the public buildings, fences, drains, culverts, &c., at all the smaller arsenals	11 Stat., 335	June 12, 1858	20,000 00
Continuing the construction of the arsenal in California	11 Stat., 335	June 12, 1858	100,000 00
Contingencies of arsenals	11 Stat., 335	June 12, 1858	10,000 00
Repairing the arsenal and 2 18-pounder gun carriages, at Stonington, Conn	11 Stat., 335	June 12, 1858	750 00
Repairs and improvements and new machinery at Springfield Armory	11 Stat., 335	June 12, 1858	55,227 00
Repairs and improvements and new machinery at Harper's Ferry Armory	11 Stat., 335	June 12, 1858	101,907 00
Compensation of civil superintendents at armories	10 Stat., 638	Mar. 3, 1855	5,000 00
Arming and equipping the militia	2 Stat., 490	Apr. 23, 1808	200,000 00
For fiscal year, June 30, 1860:			
Armament of fortifications, out of which \$50,000 are to be used for experiments on heavy ordnance	11 Stat., 433	Mar. 3, 1859	200,000 00
Ordnance, ordnance stores, and supplies, including horse equipments for the mounted regiments	11 Stat., 433	Mar. 3, 1859	200,000 00
Current expenses of the ordnance service, including experiments in arms and ammunition not otherwise provided for	11 Stat., 433	Mar. 3, 1859	100,000 00
Manufacture of arms at the national armories	11 Stat., 433	Mar. 3, 1859	250,000 00
Allegheny Arsenal	11 Stat., 433	Mar. 3, 1859	5,000 00
Benicia Arsenal	11 Stat., 433	Mar. 3, 1859	50,000 00
Fort Monroe Arsenal	11 Stat., 433	Mar. 3, 1859	14,000 00
New York Arsenal	11 Stat., 433	Mar. 3, 1859	3,000 00
North Carolina Arsenal	11 Stat., 433	Mar. 3, 1859	2,235 00
Texas Arsenal	11 Stat., 433	Mar. 3, 1859	21,000 00
Washington Arsenal	11 Stat., 433	Mar. 3, 1859	2,500 00
Watertown Arsenal	11 Stat., 433	Mar. 3, 1859	1,000 00
Watervliet Arsenal, a part of which sum may be applied to the purchase of a piece of ground adjoining the arsenal on the south side, east of the Erie Canal	11 Stat., 433	Mar. 3, 1859	25,000 00

Appropriations for ordnance purposes, 1845 to 1860—Continued.

Objects for which appropriations were made.	Statutes at Large.	Date of appropriation acts.	Amounts.
Contingencies of arsenals.....	11 Stat., 433	Mar. 3, 1859	\$20,000 00
Repairs and improvements and new machinery at Springfield Armory.....	11 Stat., 433	Mar. 3, 1859	53,910 00
Repairs and improvements and new machinery at Harper's Ferry Armory.....	11 Stat., 433	Mar. 3, 1859	55,000 00
Compensation of civil superintendents at armories.....	10 Stat., 638	Mar. 3, 1855	5,000 00
Arming and equipping the militia.....	2 Stat., 490	Apr. 23, 1808	200,000 00
Total.....			19,524,464 65

Appropriations for the office of the Colonel of Ordnance, from 1845 to 1860.

Clerical personnel.	Statutes at Large.	Dates of appropriation acts.	For the fiscal year—	Clerical compensation.	Contingent expenses.	Total.
1 clerk at \$1,200 per annum; 1 at \$1,150; 5 at \$1,000; 1 at \$800; and 1 messenger.....	5 Stat., 755	Mar. 3, 1845	1846	\$8,150	\$830	\$8,980
Do.....	9 Stat., 88	Aug. 10, 1846	1847	8,150	830	8,980
Do.....	9 Stat., 158	Mar. 3, 1847	1848	8,150	830	8,980
Per diem compensation of one clerk.....	9 Stat., 216	Mar. 27, 1848	1848	1,098	.....	1,098
1 clerk at \$1,200 per annum; 1 at \$1,150; 5 at \$1,000; 1 at \$800; and 1 messenger at \$500.....	9 Stat., 288	Aug. 12, 1848	1849	8,650	} 800	10,259
1 clerk, temporarily employed.....	9 Stat., 288	Aug. 12, 1848	1849	609		
1 clerk at \$1,200 per annum; 1 at \$1,150; 5 at \$1,000; 1 at \$800; and 1 messenger at \$500, and 1 at \$3 per diem.....	9 Stat., 357	Mar. 3, 1849	1850	9,589	1,061	10,650
Do.....	9 Stat., 528	Sept. 30, 1850	1851	8,650	850	9,500
1 clerk at \$1,200 per annum; 1 at \$1,150; 5 at \$1,000; 1 at \$800; and 1 messenger at \$500.....	9 Stat., 604	Mar. 3, 1851	1852	8,650	850	9,500
Do.....	10 Stat., 81	Aug. 31, 1852	*1853	8,650	.....	8,650
Do.....	10 Stat., 195	Mar. 3, 1853	1854	8,650	750	9,400
1 clerk at \$1,800 per annum; 1 at \$1,500; 4 at \$1,200; 2 at \$900; and 1 messenger at \$500.....	10 Stat., 553	Aug. 4, 1854	1855	10,400	.....	10,400
1 clerk at \$1,800 per annum; 1 at \$1,600; 4 at \$1,400; 2 at \$1,200; and 1 messenger at \$600.....	10 Stat., 651	Mar. 3, 1855	1856	12,000	1,100	13,100
Do.....	11 Stat., 111	Aug. 18, 1856	1857	12,000	950	12,950
1 clerk at \$1,800 per annum; 1 at \$1,600; 4 at \$1,400; 2 at \$1,200; and 1 messenger at \$840.....	11 Stat., 213	Mar. 3, 1857	1858	12,240	950	13,190
Do.....	11 Stat., 795	June 2, 1858	1859	12,240	950	13,190
Do.....	11 Stat., 410	Mar. 3, 1859	1860	12,240	900	13,140
Total.....						161,967

* By section 2 of the act of August 12, 1852 (10 Stat., 97), all salaries of \$1,200 and less were increased 20 per cent., and all below \$1,600 were increased 10 per cent., with the proviso that no salary should be increased to more than \$1,600. This increase was limited to the fiscal year 1853.

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